Texas Health Information Network Collaborative

A proposal for Federal Communications Commission support under the Rural Health Care Pilot Program

Submitted May 7, 2007 by CHRISTUS Health System, on behalf of the

Texas Health Information Network Collaboration (THINC)

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Project Summary

Government and medical authorities report that America's rural health care faces critical issues of limited services and rising costs. This is especially true for Texas, which has the largest rural population in the nation. To help meet these challenges a statewide collaboration of Texas rural healthcare providers and leading nonprofit medical resource institutions has committed to build a broadband telecommunications network designed to improve rural healthcare across the state.

The Texas Healthcare Information Network for Communities (THINC) initiative will connect rural community health care providers to urban and regional central resource centers, and with each other, for expanded health care access, improved services and lowered costs. *Service Partners* in this application include more than 200 community healthcare providers across Texas. Founding *Resource Partners* of the network include CHRISTUS Health System, Texas Organization for Rural and Community Hospitals (TORCH), University of Texas Medical Branch (UTMB), Texas A&M Health Science Center (TAMHSC), East Texas Area Health Education Center (AHEC), Rural & Community Health Institute (RCHI), and TeleCommunity Resource Center (TCRC). Additional partners are scheduled to join upon FCC grant approval.

The new THINC healthcare information network infrastructure will allow rural providers full access to expanded telehealth services including telemedicine, remote consult and triage, electronic medical records, grand rounds, continuing patient and provider education, and many other innovative telecom-based healthcare services. Its expanded connectivity, telehealth services, and cost-reduction business plan provide a basis for further telehealth development and a model for other regions to consider in meeting their own rural healthcare needs.

One means to expand rural telehealth connectivity is THINC's access to Internet2 and National Lambda Rail (NLR) resource using fiber optic infrastructure available from the state-funded Lonestar Education and Research Network (LEARN). This allows THINC to offer providers access to resources via ultra-high-speed connections as well as statewide broadband intranets.

This collaborative proposal requests RHC grant support to enhance statewide rural healthcare by creating a nonprofit broadband telehealth network based on sustainable operating principles. Anticipated outcomes of this RCH support include: model programs using telehealth technology to increase affordable healthcare and to improve general standards of health for residents of all rural communities served.

Project Narrative

THINC Goals and Objectives

The collaborative telehealth project proposed in this application is designed to help healthcare providers serve rural residents by creating and operating the new nonprofit statewide Texas Healthcare Information Network for Communities. The THINC network program will provide:

- broadband telecommunications connectivity for rural healthcare providers
- access to advanced medical services, resources, and other telehealth applications
- reduced costs of healthcare service delivery through aggregation, resource sharing
- teleconference peer meetings; remote telemetry, monitoring, diagnostics and consults
- secure HIPAA-compliant intranets for medical information and health records exchange
- consumer health education and outreach, information; professional training (incl. CME)
- community health/emergency preparedness/disaster management network component
- sustainable models for telehealth services, network operations and fiscal administration
- rural healthcare providers access to government agencies' web tools and services

Telemedicine applications supported by the network include: physician/patient encounters and consultations; distance education (health information, professional training, CME, etc.); medical data management, picture archiving and communication systems (PACS), electronic health/medical records interchange, grand rounds and other applications. A primary goal is development of innovative, effective provision of rural health services, delivered at lower costs through careful design and use of telehealth technology.

This application requests Year 1 grant funding for network planning and initial development, with intention of requesting Year 2 funding to complete full network expansion and construction.

THINC is based on the widest rural health collaboration in the state's history. More than 200 rural healthcare providers from every region of the state are participating in this collaborative project, with more coming. Resource partners include Texas' leading

telehealth and medical education institutions, rural medical alliances, community Internet experts, and online resource centers. The state's largest provider of rural healthcare services, CHRISTUS Health System, has agreed to serve as the named grant applicant and fiscal agent, on behalf of this statewide collaborative.

Supporters for this initiative, too many to list here, range from Governor Rick Perry of Texas, who has also agreed to provide matching funds needed for this grant, to individual leaders and residents of rural communities across Texas. The state-funded LEARN network offers access to highest speed backbone infrastructure and connection with Internet2 and National Lambda Rail in POPs across the state. National nonprofits, including the Association for Community Networking and the TeleCommunity Resource Center, are committed to assist THINC outreach programs to engage rural communities and share innovative new models for collaboration, network design and operations, telehealth services, and economically viable business practices.

Sustainability:

The Texas Health Information Collaborative is being created and incorporated as a permanent nonprofit organization. With initial "incubation" support from FCC RHC pilot grant program the collaborative will become an established telecom resource for rural healthcare providers.

Year 1: Design of network and programs, needs and goals assessment, primary sites buildout
Implementation of THINC policies, core Resource Sites, Phase I services and programs
Year 2: Completion of statewide network construction, evaluation of services and programs
Implementation of wider coverage, Phase II healthcare sites, and enhanced services
Yr. 3+: Continued Growth, self-sustaining operation recovering costs and appropriate reserves
Increasing interconnection with additional resources and other regional networks

This network is being designed to serve and to last, combining creative innovation, technical capability and fiscal responsibility into the foundation for a sustainable nonprofit network. In addition to financial sustainability (see Budget section) the collaborative must have a shared mission, clear policies and good communication among all partners. To achieve this balance leadership and staff of the network will receive training in success for technology nonprofits.

Outcomes: If selected for RHC Year 1 grant funding the THINC collaboration will be able to design and deploy a new nonprofit statewide telehealth network to provide enhanced, affordable access to healthcare services and resources for rural healthcare providers and for the people they serve. Within the grant year itself, this broadband network project should begin to yield measurable improvement in rural healthcare access and use. This improved service should steadily help realize an important, enduring long-term goal: measurably better health for rural residents.

Practical Vision: While this network will make more advanced medical services available for rural communities, even greater value is expected to come from additional support, shared resources, and lowered costs for delivery of routine healthcare services to rural communities.

Although the THINC project actively explores innovative uses of telecom technology, a basic principle is simple and pragmatic: one vital means to improve rural healthcare is reducing costs to make services affordable for patients and economically feasible for providers. This project is designed to develop effective models for telehealth network design, operations, administration, sustainability, and healthcare services. These models will be available for any interested person or group to adopt, adapt, and improve.

Outreach and Support: Success of this network depends on inclusion and involvement of many participants. An active outreach program will inform and engage healthcare providers, residents of rural communities, medical resource centers, public service agencies, and anyone else who could benefit or contribute. Commitment to this outreach has been offered by THINC partners and supporters, including the TeleCommunity Resource Center, Association for Community Networking, and Texas Office of Rural Community Affairs. Other programs will provide network site staff with information, training and support needed for successful telehealth network use.

2. Goals and Objectives of Network

The collaborative telehealth network proposed in this application is designed to help healthcare providers serve rural residents by creating and sustaining the nonprofit statewide Texas Healthcare Information Network for Communities. The THINC network project will provide:

- broadband telecommunications connectivity for rural healthcare providers

- access to advanced medical services, resources, and other telehealth applications
- reduced costs of healthcare service delivery through aggregation, resource sharing
- teleconference peer meetings; remote telemetry, monitoring, diagnostics and consults
- secure HIP-AA-compliant intranets for medical information and health records exchange
- consumer health education and outreach, information; professional training (incl. CME)
- community health/emergency preparedness/disaster management network component
- sustainable models for telehealth services, network operations and fiscal administration
- rural healthcare providers access to federal and state agencies' web services

Telemedicine applications supported by the network include: physician/patient encounters and consultations; distance education (health information, professional training, CME, etc.); medical data management, picture archiving and communication systems (PACS), electronic health/medical records interchange, grand rounds and other applications.

This application requests Year 1 grant funding for network planning and initial development, with intention of requesting Year 2 funding to complete full network expansion and construction.

Year 1: Design of network and programs, needs and goals assessment, primary sites buildout
Year 2: Completion of statewide network construction, evaluation of services and programs

Outcomes: RHC Year 1 grant funding will enable the THINC collaboration to develop a nonprofit statewide telehealth network designed to provide enhanced, affordable healthcare access and resources for rural residents and healthcare providers. This network project should yield an important and enduring benefit: improved services and standards for the health of rural Texans.

Scope and Vision: While this network will make more advanced medical services available for rural communities, greater value is expected to come from additional support, shared resources, and lowered costs for delivery of routine healthcare services to rural communities.

Although the THINC project is innovative, its basic principle is simple and pragmatic: the best way to improve rural healthcare is to reduce costs, making services affordable for patients and economically feasible for providers. A key priority of this project is developing effective models for telehealth network design, operations, administration, sustainability, and healthcare services. These models will be available for any interested person or group to adopt, adapt, and improve.

Outreach and Support: Success of this network depends on inclusion and involvement of many participants. An active outreach program will inform and engage healthcare providers, residents of rural communities, medical resource centers, public service agencies, and anyone else who could benefit or contribute. Commitment to this outreach has been offered by THINC partners and supporters, including the TeleCommunity Resource Center, Association for Community Networking, and Texas Office of Rural Community Affairs. Other programs will provide network site staff with information, training and support needed for successful telehealth network use.

THINC Network

Under the guidelines established by the FCC Rural Health Care Mechanism Pilot Program, the state of Texas contains numerous facilities eligible for inclusion in the proposed network. These include:

Hospitals	669
Medical Schools	8
Nursing Schools	72
Community Mental Health Centers	40
Texas State Hospitals	14
Community Health Center Sites	252
County Health Departments	254
Rural Health Clinics	328

Within Texas there are numerous additional health care facilities and higher educational institutions that can benefit from the proposed network as well; however, the focus of this application is on the rural health care providers that comprise the great majority of the

facilities listed above. Creating a broadband health care network infrastructure with the capacity to provide services to these, and other, facilities is the objective of this application. The characteristics of the envisioned network us are presented here.

A private network, rather than using the existing Internet, is envisioned to ensure that it can be managed to minimize congestion and latency, especially for telemedical and remote sensing applications. Other issues that lead this conclusion involve security, ability to easily grow, HIPAA compliance and stability.

A brief caveat is required, and that is that a full network design study has not been completed (and is provided for in the Pilot Program) so the characteristics here are subject to change.

Network Characteristics

The smallest connectivity projected is at the DS-1 (1.532 Mbps) level. If advanced communications services are utilized, the connection would be made using an equivalent QOS if at all possible. (I do not understand what this means.)

A backbone containing several high speed rings (1 gbps) will connect through a number of points of presence (POPs) throughout the state. Because the larger service providers in Texas (AT&T, Verizon, SPRINT, et al) are subject to HB2128 and provide lower cost DS-1 for not-for-profit healthcare in Texas, POPs are planned for as many LATAs as possible to allow rural facility to connect to the backbone using intra-LATA (less expensive) circuits.

In order to avoid congestion within the network itself, the network will be over-provisioned and appropriate network appliances to prioritize traffic flows will be employed. At locations where T1s are aggregated, the fold ratio of "in vs. out" circuit capacity will be chosen to insure the fastest access and lowest latency appropriate to each circuit.

As the proposed network is planned as a controlled access TCP/IP network, participating institutions and facilities will still need ordinary Internet access. There is not a simple, single solution which will fit all the participants. Part of the planning process will be to work with each player and determine which of "dual home", I1 VPN, VLAN or another solution is most appropriate for that participant. This is a complex network support activity and has to be planned correctly.
A number of the prospective members have existing Internet access circuits. Some of these are very low speed and might be eligible for replacement as a "broadband upgrade". This will be examined during the planning phase. Others have existing DS-1 based circuit networks that star together at a network center. While these individual sites are not eligible under the current rules, the existence of the network to which they belong creates an opportunity for this program to "Network the Existing Networks" By allowing an exception so that a new link can be made between THINC and these existing network centers, over 100 rural hospitals and clinics can be connected together almost immediately. Examples of existing networks are: CHRISTUS Health, Su Clinica, St. Joseph's Healthcare, Nuestra Clinica, and Memorial Hermann Healthcare to name just a few.

The primary uses of the network are expected to be communications based such as video, images, audio, community information platforms (email lists, wikis), research across LEARN and Internet2. These uses enable telemedicine consults, research, health care discussions and resource development, tele-education (public and CME) and other beneficial activities. The network is planned to be sufficiently robust to allow these uses through new, lower cost technologies such as web cams, USB based audio, digital cameras and HD video. These technologies promise improved health care at much lower costs than in earlier health care telemedicine efforts.

Another potentially important prospective application is the provision of information and content of value to rural healthcare providers, including resource, reference and medical educational materials.

Network Access Methods

Given the fact that Texas has two major local exchange carriers (AT&T and Verizon) and over 70 independent telephone companies, one challenge may be identifying the best network access media to use. The following are among connectivity options available:

- DS-1, DS-3 circuits
- OC and Sonet circuits
- Ethernet presented circuits
- Frame relay circuits
- Cable Modem - commercial
- Carrier ADSL – commercial
- Satellite
- Wireless (Wimax, WiFi on towers)
- Utility Power Line
- Cellular

Disaster Recovery

As communication is a key element in disaster recovery and as the health care industry is a key provider of disaster recovery services, the network can be designed to provide connections to other entities, such as local, state and national public safety organizations, first responders via wireless links and to key personnel in the various government

emergency management elements. These needs can be included in the initial network design and such provisioning tools as needed may be recommended to the various agencies.

Network Security

The Internet today is a difficult place for many smaller, not technical businesses to be, and rural health care providers are in the same position. They are farther from technical support, have less funding to devote to technology and its support, and probably have less internal expertise among their employees than larger, more urban providers. Adding the daily tasks of dealing with TCP/IP issues, router settings, viruses, Trojan horses and other malignant software may make the offer of a node and THINC membership very attractive. Maintaining secure, safe and easily maintained connections are essential to establish value, and this element is a major design and planning element of the proposed network. System and network security entails the continual process of staying abreast of the latest risks and threats. Many of the THINC resource partners are larger institutions with full time staff that perform these duties on a daily basis and can share their expertise with THINC.

Network Pricing

In looking at the areas to be served, the locations of the potential backbone POPs and the mix of carriers in the state, it becomes evident that individual location prices would vary widely for any circuit, from a dial-up connection to a gigabit metropolitan ring. This is especially true in this situation where one carrier may provide the rural clinic end while another provides the link into the POP. As a result, and to provide equitable access to the network by all providers of all sizes, the proposed network may utilize the postal model pricing, delivering standard bandwidth connections at a standard price including backbone costs at the same rate regardless of location, LATA and carrier. For instance a DS-1 in Kingsville (40 miles from Corpus Christi) would have the same user cost as a DS-1 in Laredo (150 miles from San Antonio) even if it crossed LATA and carrier lines.

The idea of increasing the number of users on the network should allow a lowering of the per rural user cost by spreading the fixed network and backbone costs over a larger number of paying users. The potential to lower users' costs is dependent on the bandwidth consumption of the applications which are developed and used, the number of

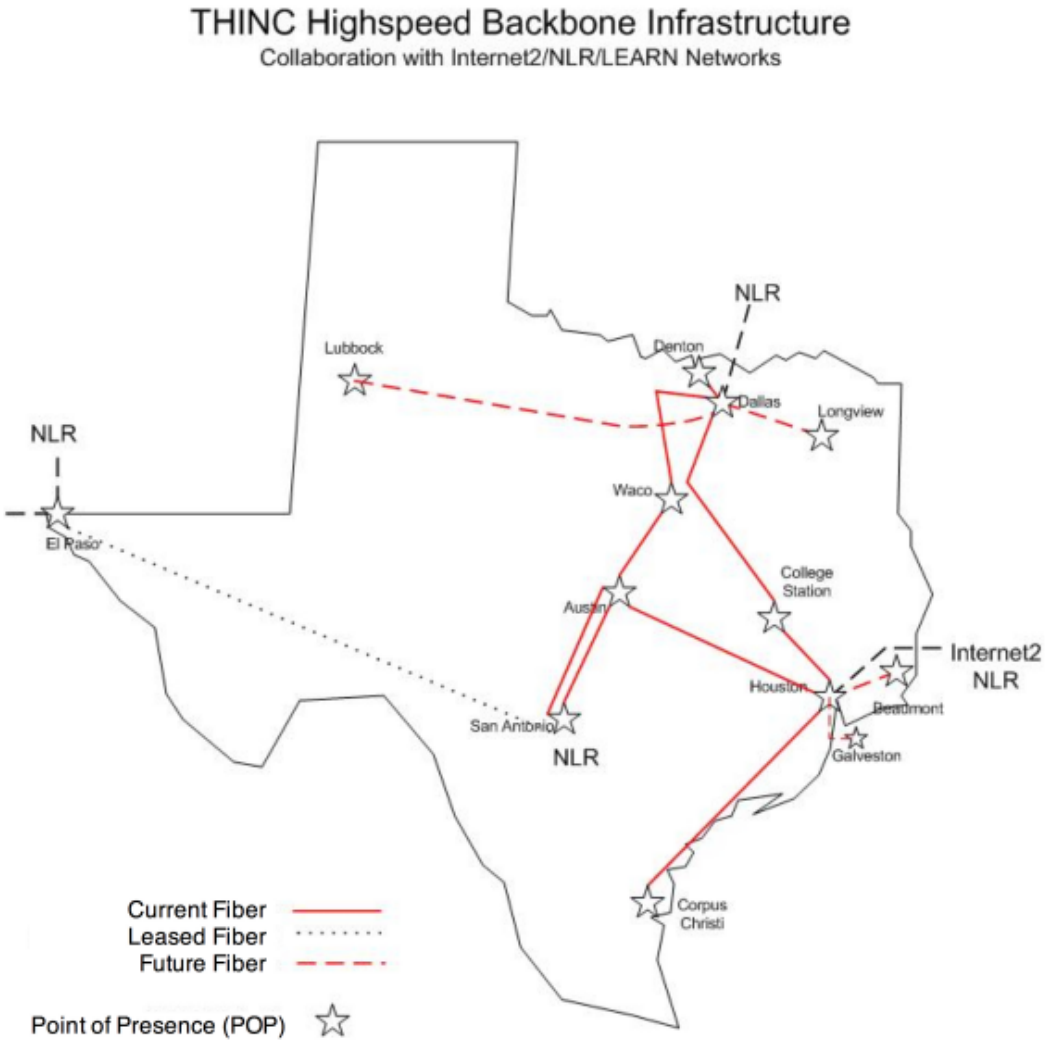
users, and the levels of congestion which may be experienced as the network grows (even though it is planned to design in such a way this will not occur.)

Network Services

Services provided on the THINC network will include DNS and other standard TCP/IP operational servers. The network will also be managed and SNMP software will be utilized in this activity.

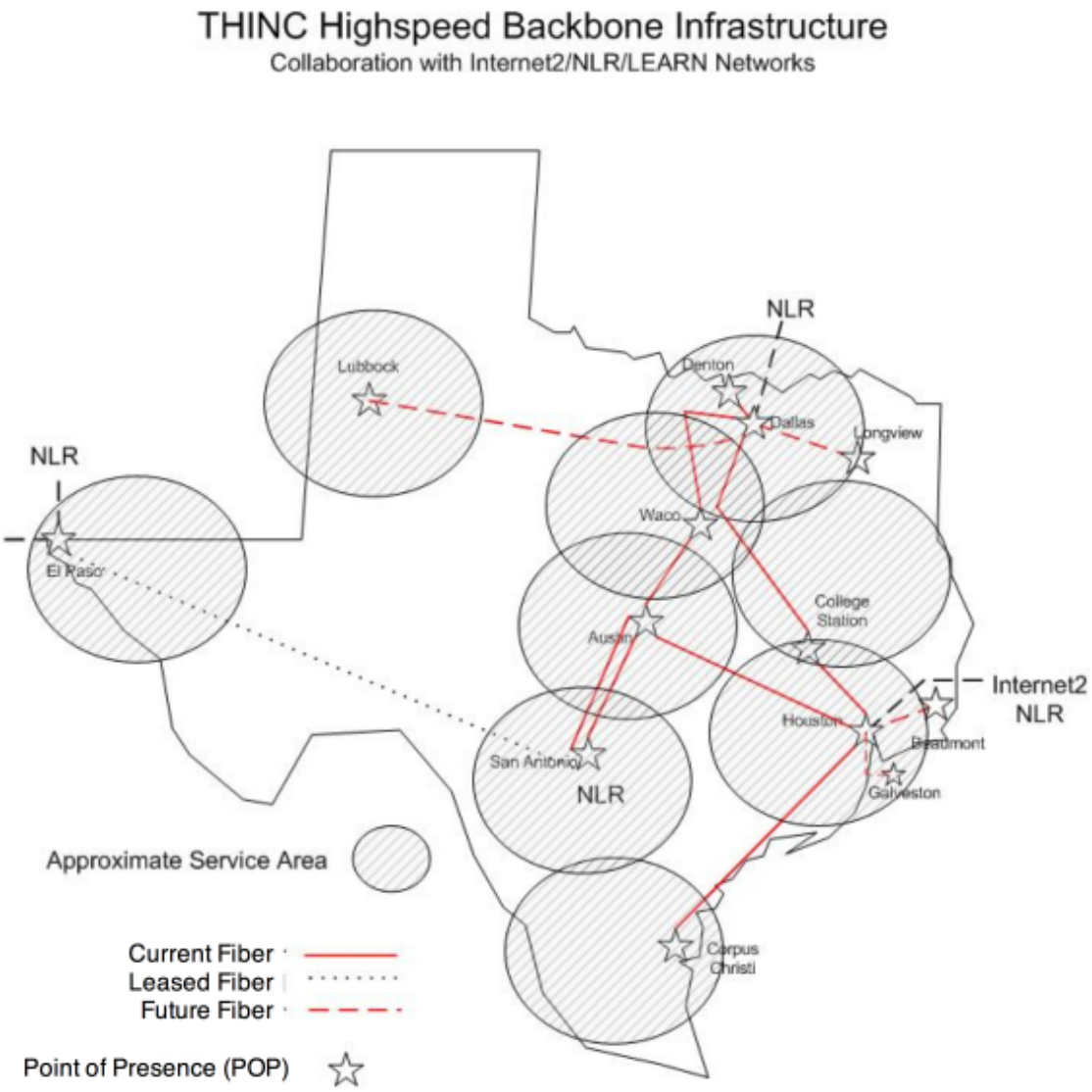
The following three maps illustrate the planed network and how it will interconnect the rural health care providers throughout the state.

Map #1 (below) shows the proposed fiber backbone, a Layer 2 network running over existing and planned fiber.



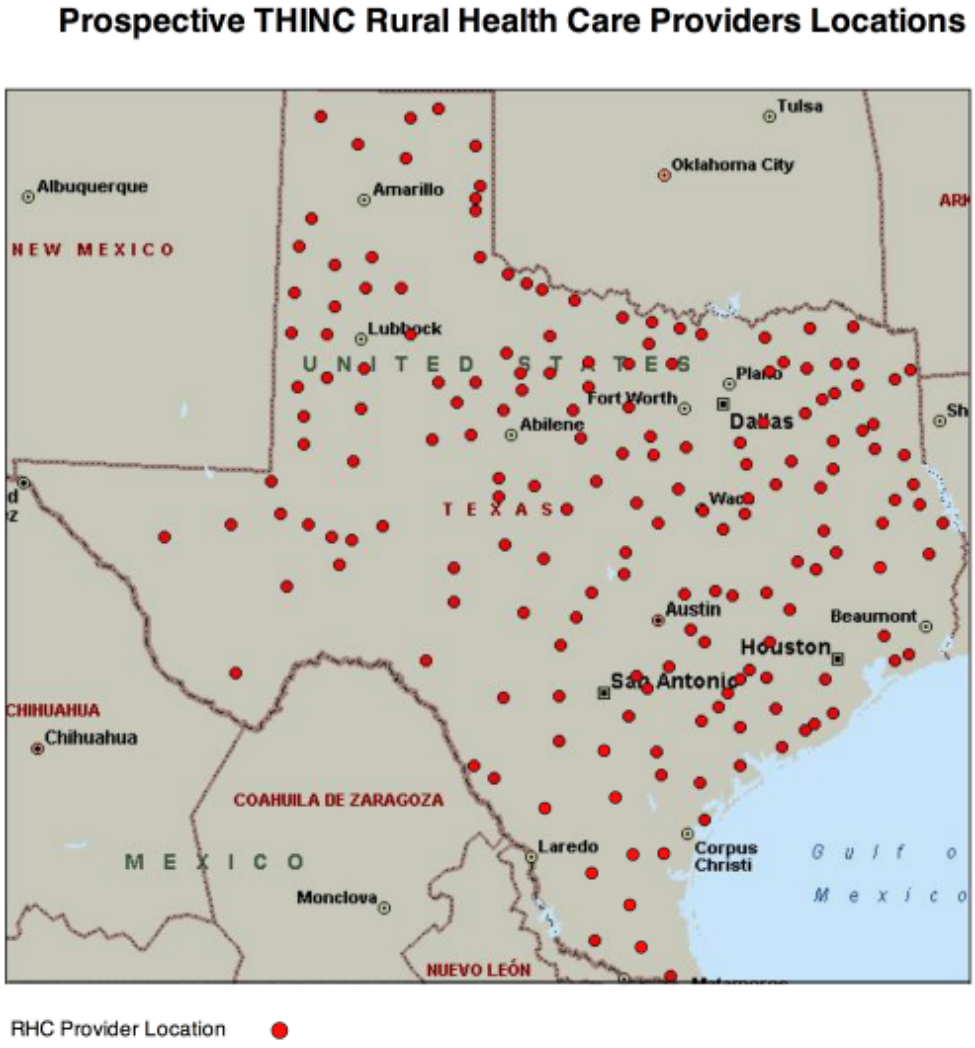
Map 1

Map #2 shows the planned distribution of POPs and how they are fed in each region.



Map 2

Map # 3 shows the locations of most of the rural health care providers anticipated as THINC members.



Map 3

3. Total Network Costs for Project Period

Summary

The entire proposed project has a cost of $5,602,982 of which FCC Pilot Program funding of 85% or $4,762,535 is the estimated cost of the development of the network infrastructure in Year 1. No attempt has been made to project costs into Year 2 as the network design has not been completed, the requests for exceptions have not been answered, and there is no experience in using the network. Year 2 will deal primarily with increasing the number of rural nodes on the network and expanding the kinds of facilities connected.

Budget and Schedule

The following six pages describe the plan for Year 1 of the Pilot Program. Each page and specific points are described below. Overall, the budget is structured so that each user pays for their own managed network connection plus THINC membership fees which are used to pay the 15% portion of the network infrastructure beyond the site locations. The budget identifies costs, allocates them to the appropriate segment of the network and provides the schedule for implementing the plan.

Grant Request – Each line describes a specific cost of the network and is coded to identify to which segment the cost applies. The segments are shown with their total expenditures in the bottom section, along with a breakout of each element and its portion of the funding. Just above that, *in italics*, is the total FCC Request and total matching funds needed.

Schedule and Assumptions – The top half of the page is the plan schedule for Year 1 by month showing the major activities in each month. The last 4 lines in the schedule show the installation rate of both rural health care providers (RHCPs) and larger institutions. We have assumed that the RHCPs will connect at a DS-1 rate and that the larger institutions will connect at a 1 gigabit rate. The bottom of the page contains the node connection assumptions for the network, and is in two sections, one for DS-1 and one for the 1 gigabit connections. Items included are both assumed managed network installation and monthly charges and THINC membership fees. The dotted box at the bottom of each node section contains the projected out-of-pocket costs to the user for each kind of node.

Operating Budget – This page has (a) the month by month growth numbers for both kinds of connections, (b) the monthly expenses paid to the provider(s) of the managed network connections. (c) the costs of user equipment needed to attach to the network and,

(d) the THINC income from membership fees. The total membership fees are more than sufficient to cover the backbone implementation and operational costs, although some financing may be required to adjust for the cash flow.

Points of Presence – Colocation – As the network will be based on a ring backbone with star user connections, places to make the user connections are necessary. In addition, the Internet2 / NLA connection will be to the ring. This budget has the location and cost of each POP to which the user circuits will connect and the necessary start-up equipment costs. The monthly recurring charge (MRC) provides for a fiber, 1 gigabit ring circuit attaching to these POPs.

Backbone – The capital costs for THINC owned routers in the POPs, necessary servers for network operation and Internet2 / NLR annual dues and monthly recurring charges are shown on this page.

Network Design – Shows elements and costs of the projected network design that must be completed before the THINC network is actually created and made operational.

GRANT REQUEST

Summary of FCC Pilot Grant Application

For DS-1 Carrier / Provider Installations	$ 79,100	A	Based on 250 new DS-1 installations during the grant fiscal year
For DS-1 Carrier / Provider Monthly Service	792,000	A	Based on DS-1 installations throughout the year, to a total of 250
For DS-1 Equipment Purchases	1,442,558	A	Based on user site equipment for 250 DS-1 nodes
For 1 Gigabit Carrier / Provider Installations	75,000	A	Based on 10 new 1 gigabit installations during the grant fiscal year
For 1 Gigabit Carrier / Provider Monthly Service	422,500	A	Based on 1 gigabit installations throughout the year, to a total of 250
For 1 Gigabit Equipment Purchases	65,000	A	Based on user site equipment for 10 OC-3nodes
For Points of Presence Monthly charges	445,236	B	Monthly service, power and rack space for THINC equipment at POP Sites
For Points of Presence Equipment, installation	408,800	B	Start-up costs for Gigabet Ethernet ring backbone service
Internet2 / NLR Membership / Use Charges	125,000	C	Total Annual charges to Internet2 / NLR
Routers / Aggregators at POP sites	857,824	C	Routers to manage incoming circuits to the backbone
Network servers hardware, software	90,000	C	Servers for DNS, SNMP, Wiki, network management, etc.
For Network Design	66,010	D	Estimated cost of survey, design and preparation for equipment for the network
For Contingency (10%)	486,903	D	Because we can't forsee app expenditures we may need
Total Expenditures Projected:	***5,355,931***		***This is the total project cost estimated for the first year.***

FCC Grant Request:	*85%*	*4,552,541*
User's portions of project:	*15%*	*803,390*

Area of Expenditure			15% Users	15% Cooperative	85% FCC
Network Member Nodes attaching to THINC	**2,876,158**	**A**	**431,424**		**2,444,734**
Shared Backbone Equipment and Internet2 Expense	**1,072,824**	**B**		**160,924**	**911,900**
POP Colocation and Backbone Transport Expense	**854,036**	**C**		**128,105**	**725,931**
Network Design and Overall Contingency Expense	**552,913**	**D**		**82,937**	**469,976**
Category totals:	**5,355,931**	**All**	**431,424**	**371,966**	**4,552,541**

Texas Health Information Network Collaboration

SCHEDULE AND ASSUMPTIONS

FCC Rural Health Support Pilot Program

Texas Regional Plan and Schedule

SCHEDULE Month following grant -> Activity	1	2	3	4	5	6	7	8	9	10	11	12	Comment
Network Design	X	X	X										Required to execute network plan
Create Organization	X	X											Provides governance and operating structure
Backbone equipment bids		X											Necessary to create network
Contract Services Provider		x											Provide full network services to members
Install Backbone Equipment			x										Ready to activate the network
Backbone operational			x	x									Test, then open network for business
Install rural nodes			x	x	x	x	x	x	x	x	x	x	Capital, circuits, training, testing for each
Install services, test, open up			x	x									Information services for member use (Mail, etc.)
Quarterly reports			x			x			x			x	To membership, FC
Market for additional members		x	x	x	x	x	x	x	x	x	x	x	Expand network by addinig new members
Market to urban and for-profits				x	x	x	x	x	x	x	x	x	Pay their own way members, non FCC supported
Implement metric gathering			x										
Number of active DS-1 nodes	0	0	40	50	72	94	116	138	160	182	204	226	TORCH group first, target 25 adds per month
Install Gigabit Ethernet circuits			X	X		X		X		X		X	For large eligible institutions (med schools, large hospi
Number of active DS-1 nodes			3	5	5	6	6	7	7	8	8	10	

Budget Assumptions Key e= Elgible for funding n = not eligible for funding Variables

DS-1 Node

NRC Items			MRC Items				
Carrier DS-1 Installation NRC:	350	e	Carrier DS-1 nonthly charge:	750	e	- Port and circuit charges	**Notes:** Proposed router / integrated switch is a
DS-1 Capital Equip Cost:	6383	e	Monthly DS-1 THINC Dues:	35	n	- Supports THINC	Cisco 2821 including 3 year maintenance
THINC one-time Initiation Fee:	400	n					and shipping.

DS-1 Node Charges	Total		FCC Part 85%	Member Part 15%	
Total install and equipment:	6733	e	5723	1410	- Includes THINC initiation fee
Total Network connection monthly:	750	e	638	113	
Total MonthlyTHINC Dues:	35	n	0	35	
			Member's Monthly net cost:	148	- Total out-of-pocket cost monthly
			Member's one-time Installation:	1410	- Total out-of-pocket cost up front

1 Gigabit Node

NRC Items			MRC Items				
Carrier 1 Gigabit Installation NRC:	7500	e	3rd party DS-1 MRC	6500	e	- Port and circuit charges	**Notes:** Proposed hardware interface is a
1 Gigabit Capital Equip Cost:	6500	e	DS-1 Mbrship Dues MRC	3000	n	- Supports THINC	Cisco gigabit Ehernet card for existing routers
THINC one-time Initiation Fee:	6000	n					and shipping.

1 Gigabit Node Charges	Total	FCC Part 85%	Member Part 15%	
Total install and equipment:	14000	11900	8100	- Includes THINC initiation fee
Total Network connection monthly:	6500	5525	975	
Total MonthlyTHINC Dues:	3000	0	3000	
		Member's Monthly net cost:	3975	- Total out-of-pocket cost monthly
		Member's one-time Installation:	9075	- Total out-of-pocket cost up front

Texas Health Information Network Collaboration

OPERATING BUDGET

FCC Pilot Program
Estimated First 12 month budget

Month - >	1	2	3	4	5	6	7	8	9	10	11	12	**Grant Total**
(a) Network Growth													
Number of DS-1 Nodes	-	-	40	50	72	94	116	138	160	182	204	226	**226**
Monthly Added DS-1 Nodes	-	-	40	10	22	22	22	22	22	22	22	22	
Number of Gigabit Nodes	-	-	3	5	5	6	6	7	7	8	8	10	**10**
Monthly Added Gigabit Nodes	-	-	3	2	-	1	-	1	-	1	-	2	
(b) 3rd Party Expenses													
DS-1 NRC			14,000	3,500	7,700	7,700	7,700	7,700	7,700	7,700	7,700	7,700	**79,100**
DS-1 Monthly Port Charges	-	-	-	30,000	37,500	54,000	70,500	87,000	103,500	120,000	136,500	153,000	**792,000**
Gigabit NRC	-	-	22,500	15,000	-	7,500	-	7,500	-	7,500	-	15,000	**75,000**
Gigabit Monthly Port Charges	-	-	19,500	32,500	32,500	39,000	39,000	45,500	45,500	52,000	52,000	65,000	**422,500**
(b) Total Services Expenses	-	-	*56,000*	*81,000*	*77,700*	*108,200*	*117,200*	*147,700*	*156,700*	*187,200*	*196,200*	*240,700*	***1,368,600***
(c) User Expenses to be Funded													
DS-1 Equipment Costs	-	-	255,320	63,830	140,426	140,426	140,426	140,426	140,426	140,426	140,426	140,426	**1,442,558**
Gigabit Equipment Costs	-	-	19,500	13,000	-	6,500	-	6,500	-	6,500	-	13,000	**65,000**
(c) Total Capital for Equipment	-	-	*274,820*	*76,830*	*140,426*	*146,926*	*140,426*	*146,926*	*140,426*	*146,926*	*140,426*	*153,426*	***1,507,558***
(d) THINC Cooperative (Not eligible for FCC funding participation)													
DS-1 Membership Dues	-	-	1,400	1,750	2,520	3,290	4,060	4,830	5,600	6,370	7,140	7,910	**44,870**
GigabitMembership Dues	-	-	9,000	15,000	15,000	18,000	18,000	21,000	21,000	24,000	24,000	30,000	**195,000**
DS-1 Initiation Fees	-	-	16,000	4,000	8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	**90,400**
Gigabit Initiation Fees	-	-	18,000	12,000	-	6,000	-	6,000	-	6,000	-	12,000	**60,000**
(d) Total THINC Revenues	-	-	*44,400*	*32,750*	*26,320*	*36,090*	*30,860*	*40,630*	*35,400*	*45,170*	*39,940*	*58,710*	***390,270***

Total FCC Eligible Node Requests: **2,876,158**

Average expense per node: **12,187**

POINTS OF PRESENCE - COLLOCATION

Estimated Backbone Points of Presence Expenses
(Budgeted as if on LEARN)

Item	qty	*Startup Costs*	*MRC*	*ARC*	***Total year 1***	*Each POP Total*
Intitiate dedicated, 1Gigabit FrameNet at POPs	1	400,000			400,000	400000
Houston Aggregated THINCnet connection	1	1,100	4,400	52,800	53,900	
1/4 Rack w/ 20amps DC			616	7,392	7,392	61,292
College Station single entity THINCnet connection	1	1,100	1,375	16,500	17,600	
1/4 Rack w/ 20amps DC			616	7,392	7,392	24,992
Corpus Christi Aggregated THINCnet connection	1	1,100	4,400	52,800	53,900	
1/4 Rack w/ 20amps DC			616	7,392	7,392	61,292
San Antonio Aggregated THINCnet connection	1	1,100	4,400	52,800	53,900	
1/4 Rack w/ 20amps DC			616	7,392	7,392	61,292
Austin Aggregated THINCnet connection	1	1,100	4,400	52,800	53,900	
1/4 Rack w/ 20amps DC			616	7,392	7,392	61,292
Waco Aggregated THINCnet connection	1	1,100	4,400	52,800	53,900	
1/4 Rack w/ 20amps DC			616	7,392	7,392	61,292
El Paso Aggregated THINCnet connection	1	1,100	4,400	52,800	53,900	
1/4 Rack w/ 20amps DC			616	7,392	7,392	61,292
DallasAggregated THINCnet connection	1	1,100	4,400	52,800	53,900	
1/4 Rack w/ 20amps DC			616	7,392	7,392	61,292
Total Year 1 Cost					**854,036**	854,036
Annual Recurring Costs		**408,800**		**445,236**		

MRC = Monthly Recurring Costs
ARC = Annual Recurring Costs

Totals		**408,800**	37,103	**445,236**	854,036	

BACKBONE

Backbone, Network Services and Management Capital Expenses

Location	Routers Aggregators	Servers Hardware, software	Internet 2 Membership Charges	Internet 2 Monthly Use Charges
Houston	107,228			
College Station	107,228	45,000		
Corpus Christi	107,228			
San Antonio	107,228			
Austin	107,228	45,000		
Waco	107,228			
El Paso	107,228			
Dallas	107,228			
Network			25,000	100,000
	857,824	**90,000**	**25,000**	**100,000**

Texas Health Information Network Collaboration

NETWORK DESIGN

FCC Rural Health Mechanism Pilot Project

Cost Analysis: Network Design

	Category							FCC Implement	FCC Operating	FCC TOTAL	Applicant Implement	Applicant Operating	Applicant TOTAL	Applicant Sustaining
	Personnel and Contractor Costs	**Comment/ Method for Calculating**			**100% Implement Cost**	**100% Operating Cost**	**100% Total Cost**	**FCC Funcing Request**	**Cost**	**Costs**	**Costs**	**Cost**	**Costs**	**Costs**	**Costs**
Key	**Agency**														
1	Project Management/Administration	160 hours @	$ 90	per hour	0	14,400	14,400	85%	0	12,240	12,240	0	2,160	2,160	0
2	Survey sites, avail resources	120 hours @	$ 75	per hour	0	9,000	9,000	85%	0	7,650	7,650	0	1,350	1,350	0
3	Network Design	60 hours @	$ 125	per hour	0	7,500	7,500	85%	0	6,375	6,375	0	1,125	1,125	0
4	Documentation of Design	30 hours @	$ 100	per hour	0	3,000	3,000	85%	0	2,550	2,550	0	450	450	0
5	Draft, dist Equipment RFPs	40 hours @	$ 75	per hour	0	3,000	3,000	85%	0	2,550	2,550	0	450	450	0
6	Vendor quotes, analysis	40 hours @	$ 75	per hour	0	3,000	3,000	85%	0	2,550	2,550	0	450	450	0
7	Develop and draft metrics plan	30 hours @	$ 100	per hour	0	3,000	3,000	85%	0	2,550	2,550	0	450	450	0
8	Nets Conversion Planning	20 hours @	$ 100	per hour	0	2,000	2,000	85%	0	1,700	1,700	0	300	300	0
9	Budget, costing, pricing	40 hours @	$ 95	per hour	0	3,800	3,800	85%	0	3,230	3,230	0	570	570	0
10	Mbrshp agmts, presentation	30 hours @	$ 100	per hour	0	3,000	3,000	85%	0	2,550	2,550	0	450	450	0
11	Contingency	10 % of other projected costs			0	6,010	6,010	85%	0	5,109	5,109	0	902	902	0
12	Administrative support	60 hours @	$ 40	per hour	0	2,400	2,400	85%	0	2,040	2,040	0	360	360	0
13	Identify traning needs, design	80 hours @	$ 75	per hour	0	6,000	6,000	85%	0	5,100	5,100	0	900	900	0
	Total Contract/Consultant Services Costs						**66,110**		**0**	**56,194**	**56,194**	**0**	**9,917**	**9,917**	**0**

4. Funding for Participant's Share of Network Costs

Summary

The THINC business plan provides for a rural health care provider TCP/IP network infrastructure throughout the state of Texas. It includes provisions for individual clinics connections to a proprietary statewide health care network and for the interconnection of the rural health care providers with each other, several major urban medical centers and with Internet2. The first year projects a total of 250 rural and 10 medical center connections all feeding into a 1 gigabit backbone through seven points of presence dispersed across the state. The break-even point is 114 rural providers and 8 urban locations. All equipment has been specified to allow for growth to at least 1,000 network connections (representing less than 50% of the eligible prospects.) The plan is designed to ensure sustainability and low cost to all participants in order to enable improved health care for rural communities through the use of new communications technologies.

The plan cannot be complete until the Network Design phase is completed in the second month of Year 1. This may cause variances in this proposed plan.

The Plan

In setting its goals, THINC understands that its market, rural health care providers, is generally economically constrained. They are either non-profit or governmental organizations faced with both low budgets and high data connection costs. By supporting data connections this Pilot Program and plan will allow them to make those connections for reasonable costs now and provide the framework for developing revenues and cost reductions to justify a more expensive connection when the FCC support changes at the end of the Pilot Program.

As a market, the rural health care providers (RHCP) have a number of situations that result in higher costs or lost revenues. Without the data analysis provided by agencies such as THINC partner Rural and Community Health Institute at Texas A&M, it may be more difficult to recognize valuable efficiencies. Skilled statistical analysis helps bring

them to light. Revenues may be lost to urban centers because specialty resources are not available locally, an issue that telemedicine consults can help relieve. Continuing medical education for both doctors and nurses have required time off work (losing revenues) and travel (increasing costs) both of which can be easily relieved through distance education. These needs drive this plan.

The plan's success hinges on two things: value developing in the network and increasing the number of user connections. THINC will continue to actively market network connections to all eligible facilities in the state throughout the Pilot Program. As each new user joins, the cost per user of the fixed backbone and colocation expenses falls. Because the Pilot Program assists in acquiring local equipment, the cost of entry is very reasonable and easy to justify with existing uses. Marketing the network through mail, phone and professional associations will be done by THINC working with its existing members to accomplish its goals. Because THINC is not funded for these activities in this plan, these services will be voluntary with all focusing on the goal of sustainability and lower network operating costs.

Much like any start-up enterprise, the capital provided by the Pilot Program coupled with the support allowing initial absorption of the operating losses as the network grows creates the foundation for a successful business. As the network grows, additional revenues can be found through the addition of private and for-profit members, the addition of non-health care provider associate members such as vendors and insurance companies seeking HIPAA compliant facilities for billing. These revenues, which will be sought as soon as feasible, can provide the additional funding to increase service levels to the target market, the rural providers. As the network size and applications grow, so will the value to these other prospective users. These sources are a major key to the sustainability of this business plan over the longer term.

Essentially, the plan calls for each user to pay a portion of the costs associated with providing them service and for them to join and pay membership fees to THINC. By joining THINC, they will receive voting rights that ensure their ability to participate in network governance. These fees are used to pay for the 15% share of the POP and Backbone expenses, and are shown on the budget, but not shown as eligible for funding within the budget. The 15% shares and membership fees are shown on the Schedule and Assumptions page and summarized on the Operating Budget page.

For-Profit Health Care Participants

The proposed THINC collaborative network is closed, proprietary and HIPAA compliant. As a result it is confined to health care providers: hospitals, clinics, medical practices, higher educational institution departments offering health care curricula and other entities directly involved in providing health care with legitimate needs to communicate about or access to shared health care information. The network users proposed in this application are all eligible under the FCC Pilot Program to participate in funding; that is, they are public or non-profit organizations that meet the program requirements. There are no for-profit entities in the current plan, although they are important components to a successful network.

A for-profit health care provider must not be discriminated against, nor will they be expected to subsidize the non-profit members of the network through the service offerings. They may fall into a different membership category as a member of THINC and in this position help support the ongoing efforts of the organization. The network services provided by THINC are based on managed network costs delivered by a third party; the membership fees support the backbone infrastructure and overall network management. It is expected that over time THINC will receive enough in membership fees to assume management of the network, lowering costs to all users for their transport connection costs. All members, for profit, non-profit and public will be responsible at that point for their own connecting circuits. Membership fees will still be required to support the network operation.

For-profit membership fees will reflect the actual cost of infrastructure additions necessary to support each one (pro-rata network interface cards in the backbone routers, for instance), the cost of installing their transport circuit on both ends (their premise and the appropriate POP) and any other costs directly resulting from their attachment to the network. The initiation fee and monthly dues will be based on the bandwidth of the circuit connecting the institution of the network in the same manner, but with an added percentage, as the rates paid by the non-profit and public members. This rate increase would most likely be in the range of 10% to 20% of the base rate charged to others. In

this manner, the membership fees charged to the non-profit members may be expected to fall somewhat, further enabling their continued participation.

THINC may begin marketing the network to for-profits mid-year of later in Year 1. Because the cost of entry and services is higher for the for-profits than the potentially FCC Pilot Program subsidized non-profits, there will be a greater demand for return on investment and value in the network that may take some time to develop and demonstrate. One for-profit segment that is of interest is the major urban hospitals due to their ability to generate revenues from referrals by the rural health care providers. For-profit rural clinics and hospitals have expressed an interest during the development of this application, so it appears success with the for-profit segment is viable.

5. Other Financial Support and Anticipated Revenues

Network and Operations Sustainability

The two primary issues with sustainability are value to network users and the cost of being attached to the network. A clinic or hospital that derived no value, either through cost reductions, improved outcomes or incremental revenue from its use of the network would not be inclined to continue its use, almost regardless of cost. If the organization recognizes these and other benefits, it may well determine to continue using the network, even if the economic burden increases. While the sustainability of the network cannot be guaranteed, it is believed that the existing applications and those that will emerge over the program life will provide the incentive to remain on the network.

However, it the network costs exceed the direct financial benefit of the user or if the cost is simply too high, the users may leave the network. There are several resources for additional funding to help prevent the cost from reaching that point, even if the support funding is discontinued. Among these opportunities are:

- Increasing the node user charges to the proportion of heavier using members to subsidize the smaller rural users.

- Charging for-profit health care users a higher rate than the public and non-profit users, another method of providing some subsidy.

- Seeking to supplement existing funding by securing additional funding through State and Federal programs and funds, such as the Texas TIF, the Texas Enterprise Fund (to encourage development of cost lowering commercial health care applications), USDA, US HHS, and other federal agencies concerned with and funding rural support programs.

- Charging health care application vendors THINC membership fees and possibly supporting vendor displays at the annual meeting. This practice is common with many commercial and other associations, and often provides a substantial portion of their operating budget.

- Possibly selling additional or excess bandwidth on some circuits via VPNs to community networks, including public safety and educational users.

- Other health care network circuits could be sold to pharmacies, hospices, nursing homes, etc, in the same format as the for-profit hospitals and clinics.

The conclusion this leads to is that there are a number of methods that can be used to ensure sustainability of this health care network. Like any business, value grows over time as does the potential to be self-supporting. The long term existence of the network is most likely assured if THINC can maintain its operation and continued growth over the next five to seven years.

6. Participating Health Care Facilities

Name	Address	City	Phone number	Zip Code
ANGLETON DANBURY MED CTR	132 Hospital Drive	Angleton	979/848-9102	77515
ANSON GENERAL HOSPITAL	101 Avenue J	Anson	325/823-3231	79501
Atascosa Health Center, Inc.	310 W. Oaklawn	Pleasanton	830-569-2527	78064
ATLANTA MEMORIAL HOSPITAL	708 South 1st Street	Atlanta	903/799-3000	75551
BALLINGER MEMORIAL HOSPITAL	320 North Main Street	Ballinger	325/365-2531	76821
Baptist St. Anthony Health System	1600 Wallace Blvd.	Amarillo	806 212 2000	79106
Bayside Community Hospital & Clinic	200 Hospital Dr.	Anauhac	409-267-3143	77514
Bell County Public Health District	Lanier Center 210 N. 8th St.	Temple	254-773-4457	76505
Bellville General Hospital	44 North Cummings	Bellville	979-865-3141	77418

BIG BEND REGIONAL MED CTR	2600 Highway 118 N	Alpine	432/837-3447	79830
BOWIE MEMORIAL HOSPITAL	705 E. Greenwood Ave.	Bowie	940/872-1126	76230
BROWNFIELD RGNL MED CTR	705 East Felt	Brownfield	806/637-3551	79316
Brownwood Community Health Center	2410 Crocket Drive Suite B	Brownwood	325-643-5167	76801
BROWNWOOD RGNL MED CTR	1501 Burnet Drive	Brownwood	325/649-3301	76804
Burleson St. Joseph's Hospital	1101 Woodson Drive	Caldwell	979-567-3245	77836
Burlison St. Joseph Manor	1022 Presidental Corridor	Caldwell		77836
Burlison St. Joseph Somerville Clinic	600 Memory Lane	Somerville		77879
Canyon Health Center	700 Frio St. PO Box 455	Camp Wood	830-597-6425	78833
Childress Regional Medical	Highway 83 North	Childress	940-937-6371	79201
CHILLICOTHE HOSPITAL	303 Avenue I	Chillicothe	940/852-5131	79225
Christus Spohn Hospital Beeville	1500 E. Houston Highway	Beeville	361-354-2000	78102
Christus	301 S. Hillside Drive Suite 4	Beeville	361-358-6249	78102
Christus Santa Rosa Children's Hospital	333 N. Santa Rosa St.	San Antonio	210-704-2011	78207
Christus St. Michael Health System	2600 St. Michael Drive	Texarkana	903-614-1000	75503
Christus	906 S. St. Mary	Falfurrias	361-325-3615	78355
Christus La Clinica de las Hermanas	Highway 107 and La Feria	Santa Rosa	956-636-1805	78593
Christus Rice Medical Center	610 South Austin Road	Eagle Lake	979-234-5571	77434
Christus	123 South Main	Freer	361-394-7311	78357
St. Catherine Hospital	701 S. Fry	Katy	281-599-5700	77450
Christus Jasper Memorial Hospital Family Practice Center	1276 S. Peachtree Street	Jasper	409-384-5701	75951
Christus	205 E. Lavielle Street	Kirbyville	409-423-2217	75956
Christus	2427 Rural Route 255W	Rayburn	409-698-9600	75951
Christus	2014 S. Wheeler St.	Jasper	409-384-5919	75951
Christus Jasper Memorial Hospital	1275 Marvin Hancock Drive	Jasper	409-384-5461	75951
Christus St. Elizabeth Hospital	2830 Calder Avenue	Beaumont	409-892-7171	77702
Christus Spohn Hospital Alice	2500 East Main Street	Alice	361-661-8000	78332
Christus Spohn Hospital Alice Laviana Plaza	700 Flournoy Road, Alice	Alice	361-661-8203	78332
Christus Spohn Hospital	1311 E. General Cavazos	Kingsville	361-595-1661	78363
Christus	1311 East Cavazos Blvd. Suite 30	Kingsville	361-595-9900	78363
Christus East Bernard	703 Morris	East Bernard	979-335-4433	77435
Christus San Jose Clinic	301 Hamilton Street	Houston	713-228-9411	77002
CLAY COUNTY MEM HOSPITAL	310 W. South St.	Henrietta	940/538-5621	76365
COLEMAN CO MED CTR	310 South Pecos Street	Coleman	325/625-2135	76834
COLORADO-FAYETTE MED CTR	400 Youens Drive	Weimar	979/725-9531	78962
COLUMBUS COMMUNITY HOSP	110 Shult Drive	Columbus	979/732-2371	78934
COMANCHE CNTY MEDICAL CTR	10201 Hwy 16 North	Comanche	254/879-4900	76442
Community Action Corp. of South Texas	700 Flournoy Rd	Alice	361-664-1417	78332
Community Action Corp. of South Texas	621 E. Sinton	Sinton	361-364-4486	78387
Community Action Corp. of South Texas	201 W. Blucher	Falfurrias	361-460-1796	78355
Community Action Corp. of South Texas	217 W. San Patricio	Mathis	361-460-1796	78368
Community Specialty Hospital	1111 Gallagher Drive	Sherman	903-870-7000	75090
Concho County Hospital	614 EAKER STREET	Eden	325-869-5911	76830
Conllingsworth General Hospital	1013 15th Street	Wellington	806-447-2521	79095

CONNALLY MEMORIAL MED CTR	499 10th St.	Floresville	830/393-1303	78114
COON MEMORIAL HOSPITAL	1411 Denver Ave.	Dalhart	806/244-4571	79022
CORYELL MEM HEALTHCARE SYS	1507 West Main Street	Gatesville	254/248-6300	76528
COVENANT HOSPITAL	1900 College Avenue	Levelland	806/894-4963	79336
COVENANT HOSPITAL PLAINVIEW	2601 Dimmitt Road	Plainview	806/296-4265	79072
COZBY-GERMANY HOSPITAL	707 North Waldrip	Grand Saline	903/962-4242	75140
CRANE MEMORIAL HOSPITAL	1310 South Alford Street	Crane	432/558-3555	79731
CROSBYTON CLINIC HOSPITAL	710 West Main St.	Crosbyton	806/675-2382	79322
Cross Timbers Community Health Clinics	1100 W. Reynosa	DeLeon	254-893-5222	76444
Cuero Community Hospital	2550 North Esplanade	Cuero	(361)275-6191	77954
Culberson Hospital	Eisenhower Rd. Fm. 2185	Van Horn	432-283-2760	79855
D.M. COGDELL MEM HOSPITAL	1700 Cogdell Blvd.	Snyder	325/574-7437	79549
Dallam-Hartley Counties Hospital District	1411 Denver Ave	Dalhart	806-244-4571	79022
Dell City Clinic		Dell City		79837
DIMMIT COUNTY MEMORIAL HOSP	704 Hospital Drive	Carrizo Springs	830/876-2424	78834
Eastland Community Health Center	404 W. Commerce	Eastland	254-629-8889	76448
Eastland Memorial Hospital	304 South Daugherty Street	Eastland	(254 629-2601	76448
El Campo Memorial	303 Sandy Corner Road	El Campo	979 543 6251	77437
Electra Memorial Hospital	1207 S. Bailey	Electra	940-495-3981	76360
ETMC ATHENS	2000 South Palestine	Athens	903/676-1191	75751
ETMC CARTHAGE	409 Cottage Road	Carthage	903/693-3841	75633
ETMC CLARKSVILLE	3000 W.Main(Hwy82West)	Clarksville	903/427-6400	75426
ETMC CROCKETT	1100 Loop 304 East	Crockett	936/546-3890	75835
ETMC FAIRFIELD	125 Newman Street	Fairfield	903/389-2121	75840
ETMC GILMER	712 North Wood St.	Gilmer	903/841-7102	75644
ETMC JACKSONVILLE	501 South Ragsdale	Jacksonville	903/541-5000	75766
ETMC MOUNT VERNON	500 Hwy 37 South	Mount Vernon	903-537-8000	75457
ETMC PITTSBURG	414 Quitman Street	Pittsburg	903/856-4500	75686
ETMC QUITMAN	117 Winnsboro Street	Quitman	903/763-6300	75783
ETMC TRINITY	317 Prospect Drive	Trinity	936/744-1100	75862
FAITH COMMUNITY HOSPITAL	717 Magnolia	Jacksboro	940/567-6633	76458
Falls Community Hospital and Clinic	322 Coleman St.	Marlin	254-803-3539	76661
FORT DUNCAN REGIONAL MED CTR	3333 N. Foster Maldonado Blvd.	Eagle Pass	830/773-5321	78852
FRIO RGNL HOSPITAL	200 S. IH-35	Pearsall	830/334-3617	78061
GLEN ROSE MEDICAL CTR	1021 Holden Street	Glen Rose	254/897-2215	76043
GOLDEN PLAINS COMM HOSP	200 South McGee	Borger	806/273-1100	79007
Gonzales Community Health Center	228 St. George Street	Gonzales	830-672-6511	78629
GONZALES HEALTHCARE SYS	1101 Sara DeWitt Drive	Gonzales	830/672-7581	78629
GOOD SHEPHERD MEDICAL CTR	404 N. Kaufman Street	Linden	903/756-5561	75563
Goodall-Witcher Healthcare Foundation	101 S. Ave T	Clifton	254-675-8322	76634
GRAHAM REGIONAL MEDICAL CTR	1301 Montgomery Road	Graham	940/549-3400	76450

Grayson Home Health	225 W. Brockett	Sherman	903-891-1613	75090
Grimes St. Joseph Health Center	210 South Judson	Navasota		77868
GUADALUPE REGIONAL MEDICAL CENTER	1215 East Court Street	Seguin	830/379-2411	78155
HAMILTON GENERAL HOSPITAL	400 North Brown St.	Hamilton	254/386-1600	76531
HAMILTON HOSPITAL	901 W. Hamilton	Olney	940/564-5521	76374
HANSFORD HOSPITAL	707 South Roland	Spearman	806/659-2535	79081
HARDEMAN CTY MEM HOSPITAL	402 Mercer Street	Quanah	940/663-2795	79252
HASKELL MEMORIAL HOSPITAL	1 North Avenue N	Haskell	940/864-2621	79521
Heart of Texas Memorial Hospital	2008 Nine Road	Brady	(325 597-2901	76825
Hemphill County Hospital	1020 S. 4th	Canadian	806-323-6422	79014
HENDERSON MEMORIAL HOSP	300 Wilson Street	Henderson	903/657-7541	75652
HEREFORD REG MEDICAL CENTER	801 East 3rd St.	Hereford	806/364-2141	79045
Hill Country Memorial Hospital	1020 Highway 16 South	Fredericksburg	(830)997-4353	78624
HOPKINS CTY MEM HOSPITAL	115 Airport Road	Sulphur Springs	903/439-4051	75482
IRAAN GENERAL HOSPITAL DIST	305 West 5th Street	Iraan	432/639-2575	79744
JACKSON HEALTHCARE CENTER	1013 South Wells St.	Edna	361/782-5241	77957
JOHNS COMMUNITY HOSPITAL	305 Mallard Lane	Taylor	512/352-7611	76574
Kimble Hospital	2101 Main Street	Junction	(325) 446-3321	76849
Knox County Hospital District	701 South 5th	Knox City	940-657-3535	79529
Laird Memorial Hospital	1612 South Henderson Blvd.	Kilgore	903-984-3505	75662
LAKE GRANBURY MED CTR	1310 Paluxy	Granbury	817/579-2951	76048
LAMB HEALTHCARE CENTER	1500 South Sunset	Littlefield	806/385-6411	79339
Lavaca Medical Center	1400 North Texana	Halletsville	361-798-3671	77964
LEARN - Austin	304 East 24th St., Services Bldg Rm 319	Austin		78712
LEARN - Beaumont	750 N. Pearl Street	Beaumont		77701
LEARN - College Station	TAMU Campus, Wehner Bldg, Rm B1	College Station		77843
LEARN - Corpus Christi	4901 Westway Drive	Corpus Christi		78408
LEARN - Dallas	400 South Akard Street	Dallas		78712
LEARN - Denton	307 Avenue B. ISB Rm 133	Denton		76201
LEARN - El Paso	501 W. Overland Ave.	El Paso		79901
LEARN - Houston	1124 Hardy Street	Houston		77020
LEARN - Longview	301 W. Whaley Street	Longview		75601
LEARN - Lubbock		Lubbock		
LEARN - San Antonio	1203 N. Frio Street	San Antonio		78207
LEARN - Victoria	US 87, 500 ft South of US 59 Bypass	Victoria		77901
LEARN - Waco	3311 Clay Street	Waco		76711
LEARN - Waller	41125 Prairie View Bypass	Waller		77484
Liberty County EMS	11119 Highway 146	Hardin		77561
LIMESTONE MEDICAL CENTER	701 McClintic	Groesbeck	254/729-3281	76642
LLANO MEMORIAL HLTHCRE SYS	200 West Ollie Street	Llano	325/247-7868	78643

Luling Community Health Center	115-T South Laurel Street	Luling	830-875-6399	78648
MADISON ST. JOSEPH HLTH CTR	100 West Cross	Madisonville	936/348-2631	77864
MARTIN COUNTY HOSPITAL DIST	610 N. Saint Peters St.	Stanton	432/756-3345	79782
MATAGORDA COUNTY HOSP	1115 Avenue G	Bay City	979/245-6383	77414
MCCAMEY COUNTY HOSP DIST	2500 Hwy 305 South	McCamey	432/652-8626	79752
Medical Arts Hospital	1600 N. Bryan Ave.	Lamesa	806-872-2183	79331
MEDINA COMMUNITY HOSPITAL	3100 Avenue E	Hondo	830/426-7838	78861
MEMORIAL HOSPITAL	209 Northwest Eighth Street	Seminole	432/758-5811	79360
MEMORIAL MEDICAL CENTER	815 N. Virginia Street	Port Lavaca	361/552-6713	77979
MEMORIAL MEDICAL CENTER	511 E. Hospital SE	San Augustine	936/275-3446	75972
MITCHELL COUNTY HOSP DIST	997 W. I-20	Colorado City	325/728-3431	79512
Moore County Hospital	224 E 2nd St	Dumas	(806)935-7171	79029
MOORE COUNTY HOSPITAL DISTRICT	224 East 2nd Street	Dumas	806/935-7171	79029
MOTHER FRANCES HOSPITAL	2026 South Jackson	Jacksonville	903/541-4500	75766
Muenster Memorial Hospital	605 North Maple Avenue	Muenster	940-759-2271	76252
MULESHOE AREA MEDICAL CTR	708 South 1st Street	Muleshoe	806/272-4524	79347
NACOGDOCHES MEM HOSP	1204 Mound Street	Nacogdoches	936/564-4611	75961
NOCONA GENERAL HOSPITAL	100 Park Street	Nocona	940/825-3235	76255
North Runnels County Hospital District	7821 HWY 153 East	Winters	325-754-4553	79567
North Texas Medical Center	1900 Hospital Boulevard	Gainsville	940-612-8603	76240
Nuestra Clinica del Valle	4800 South 24th Street	McAllen	956-971-0255	78501
OCHILTREE GENERAL HOSPITAL	3101 Garrett Drive	Perryton	806/435-3606	79070
Otto Kaiser Memorial Hospital	3349 South Highway 181	Kenedy	(830) 583-3401	78119
Our Health Nuestro Centro de Salud	200 S. Evans	Uvalde	830-278-7105	78801
Palacios Community Medical Center	311 Green Avenue	Palacios	361-972-2511	77465
PALO PINTO GENERAL HOSPITAL	400 Southwest 25th Avenue	Mineral Wells	940/325-7891	76067
PARKVIEW HOSPITAL	900 S. Sweetwater	Wheeler	806/826-5581	79096
PARKVIEW REGIONAL HOSPITAL	600 S. Bonham	Mexia	254/562-5332	76667
PARMER CTY COMM HOSP	1307 Cleveland Street	Friona	806/250-2754	79035
Pecos County Memorial Hospital	387 West IH-10	Fort Stockton	432-336-2004	79735
PERMIAN REGIONAL MED CTR	720 Hospital Drive	Andrews	432/523-2200	79714
PLAINS MEMORIAL HOSPITAL	310 W. Halsell Street	Dimmitt	806/647-2191	79027
Powell Memorial St. Joseph Family Medicine Clinic	102 East Main	Centerville		75833
PRESBYTERIAN HOSPITAL	2900 Sterling Hart Drive	Commerce	903/886-3161	75428
PRESBYTERIAN HOSPITAL	719 West Coke Road	Winnsboro	903/342-5227	75494
RANKIN COUNTY HOSPITAL DIST	1105 Elizabeth Street	Rankin	432/693-2443	79778
REAGAN MEMORIAL HOSPITAL	805 North Main Street	Big Lake	325/884-2561	76932
Red River Regional Hospital	504 Lipscomb	Bonham	903-640-7310	75418
Reeves County Hospital	2323 Texas Street	Pecos	432-447-3551	79772
REFUGIO CO MEMORIAL HOSPITAL	107 Swift Street	Refugio	361/526-2321	78377
RICE DISTRICT COMMUNITY HOSP	600 South Austin Road	Eagle Lake	979/234-5571	77434

Richards Memorial Hospital	1700 Brazos Ave.	Rockdale	512-446-2513	76567
Rolling Hills Health	Hwy 83 & Oak Hill Dr. PO Box 1021	Leakey	830 232 6985	78873
ROLLING PLAINS MEMORIAL HOSP	200 East Arizona Avenue	Sweetwater	325/235-1701	79556
SABINE COUNTY HOSPITAL	2301 Hwy. 83 West	Hemphill	409/787-3300	75948
SCHLEICHER COUNTY MED CTR	404 West Murchison	Eldorado	325/853-2507	76936
SETON EDGAR B. DAVIS	130 Hays Street	Luling	830/875-7000	78648
SETON HIGHLAND LAKES	3201 S. Water St.	Burnet	512/715-3000	78611
SEYMOUR HOSPITAL	200 Stadium Drive	Seymour	940/889-5572	76380
SHAMROCK GENERAL HOSPITAL	1000 South Main	Shamrock	806/256-2114	79079
SID PETERSON MEMORIAL HOSP	710 Water Street	Kerrville	830/258-7366	78028
SMITHVILLE RGNL HOSPITAL	800 E. Hwy 71	Smithville	512/237-3214	78957
Southwest Texas Network	201 S. Evans	Uvalde	830-278-5604	78801
Southwest Texas Network	908 S. Evans	Uvalde	830-278-5604	78801
Southwest Texas Network	121 West Nopal	Uvalde	830-278-7105	78801
St. Joseph Regional Health Center	2801 Franciscan Drive	Bryan		77802
St. Joseph Lexington Family Medicine Clinic	8463 Highway 77	Lexington		78947
St. Joseph Normangee Family Medicine Clinic	Main and 9th Street	Normangee		77871
St. Joseph Franklain Family Medicine Clinic	305 Gay Street	Franklain		77856
St. Joseph Hearne Family Medicine Clinic	709 Barton Street	Hearne		77859
ST. MARK'S MEDICAL CENTER	One St. Mark's Place-Hwy 77	LaGrange	979/242/2200	78945
STAMFORD MEMORIAL HOSPITAL	P. O. Box 911	Stamford	325/773-2725	79553
STARR COUNTY MEMORIAL HOSP	2573 Hospital Court	Rio Grande City	956/487-5561	78582
STEPHENS MEMORIAL HOSPITAL	200 South Geneva Street	Breckenridge	254/559-2241	76424
STONEWALL MEMORIAL HOSPITAL	821 Broadway	Aspermont	940/989-3551	79502
Su Clinica Familiar	131 Farm Road 3168	Raymondville	956-689-2196	78580
SUTTON COUNTY HOSP DIST	308 Hudspeth	Sonora	325/387-2521	76950
SWEENY COMMUNITY HOSPITAL	305 N. McKinney St.	Sweeny	979/548-1500	77480
SWISHER MEMORIAL HOSPITAL	539 S.E.Second St.	Tulia	806/995-3581	79088
Texoma HealthCare System	1000 Memorial Drive	Dension	903-416-4126	75021
TITUS REGIONAL MEDICAL CTR	2001 No. Jefferson St.	M Pleasant	903/577-6000	75455
TRINITY COMMUNITY MED CTR	700 Medical Parkway	Brenham	979/836-6173	77833
Tyler County Hospital	1100 West Bluff	Woodville	409-283-8141	75979
United Medical Centers Edison Road Clinic	1175 Eidson Road	Eagle Pass	830-757-6946	78852
United Medical Centers San Felipe Clinic	1117 W. De La Rosa Street	Del Rio	830-768-4800	78840
United Medical Centers # 1	2525 Veterans Blvd.	Eagle Pass	830-773-8917	78853
United Medical Centers # 2	202 James Street	Bracketville	830-563-2434	78832
United Medical Centers # 3	913 S. Main Street	Del Rio	830-768-4800	78840
Uvalde Memorial Hospital	1025 Garner Field Road	Uvalde	830-278-6257	78801
Val Verde Regional Medical Center	801 Bedell Ave	Del Rio	830-775-8566	78840
Valley Baptist Health System	2101 Pease Street	Harlingen	956-389-1039	78551

Vida Y Salud Health Systems	308 Cesar Chavez Avenue	Crystal City	830-374-2301	78839
Vida Y Salud Health Systems	Highway 57 West and Edith Street	La Pryor	830-365-4526	78872
Vida Y Salud Health Systems	909 Airport Drive	Crystal City	830-374-8076	78839
W.J. MANGOLD MEM HOSPITAL	320 N. Main	Lockney	806/652-3373	79241
Waco-McLennan County Public Health District	225 W. Waco Drive	Waco	254-750-5459	76707
WARD MEMORIAL HOSPITAL	406 South Gary	Monahans	432/943-2511	79756
WILBARGER GENERAL HOSPITAL	920 Hillcrest Drive	Vernon	940/552-9351	76384
Wilson N. Jones Medical Center	500 North Highland	Sherman	903-870-4591	75092
WINKLER COUNTY MEM HOSPITAL	406 South Gary	Kermit	432/586-5864	79745
WISE RGNL HEALTH SYSTEM	2000 South FM 51	Decatur	940/627-5921	76234
YOAKUM COMMUNITY HOSPITAL	2500 Hwy 305 South	Yoakum	361/293-2321	77995
YOAKUM COUNTY HOSPITAL	1600 North Bryan Avenue	Denver City	806/592-2121	79323

7. Required Information for Each Participating Health Care in Year 1

ANGLETON DANBURY MED CTR	132 Hospital Drive	Angleton	979/848-9102	77515	1
ANSON GENERAL HOSPITAL	101 Avenue J	Anson	325/823-3231	79501	10.4
ATLANTA MEMORIAL HOSPITAL	708 South 1st Street	Atlanta	903/799-3000	75551	7.3
BALLINGER MEMORIAL HOSPITAL	320 North Main Street	Ballinger	325/365-2531	76821	7
Bayside Community Hospital & Clinic	200 Hospital Dr.	Anauhac	409-267-3143	77514	10.1
Bellville General Hospital	44 North Cummings	Bellville	979-865-3141	77418	7.3
BIG BEND REGIONAL MED CTR	2600 Highway 118 N	Alpine	432/837-3447	79830	7
BOWIE MEMORIAL HOSPITAL	705 E. Greenwood Ave.	Bowie	940/872-1126	76230	7
BROWNFIELD RGNL MED CTR	705 East Felt	Brownfield	806/637-3551	79316	7
BROWNWOOD RGNL MED CTR	1501 Burnet Drive	Brownwood	325/649-3301	76804	4
Burleson St. Joseph's Hospital	1101 Woodson Drive	Caldwell	979-567-3245	77836	7.1
Burlison St. Joseph Manor	1022 Presidental Corridor	Caldwell		77836	7.1
Burlison St. Joseph Somerville Clinic	600 Memory Lane	Somerville		77879	10.4
Canyon Health Center	700 Frio St. PO Box 455	Camp Wood	830-597-6425	78833	10.0
Childress Regional Medical	Highway 83 North	Childress	940-937-6371	79201	7.0
CHILLICOTHE HOSPITAL	303 Avenue I	Chillicothe	940/852-5131	79225	7.4
Christus	906 S. St. Mary	Falfurrias	361-325-3615	78355	7.0
Christus	123 South Main	Freer	361-394-7311	78357	7.0
Christus	205 E. Lavielle Street	Kirbyville	409-423-2217	75956	9.0
Christus	2427 Rural Route 255W, PO Box 5316	Rayburn	409-698-9600	75951	8.0
Christus	2014 S. Wheeler St.	Jasper	409-384-5919	75951	8.0
Christus East Bernard	703 Morris	East Bernard	979-335-4433	77435	10.4
Christus Jasper Memorial Hospital	1275 Marvin Hancock Drive	Jasper	409-384-5461	75951	8.0
Christus Jasper Memorial Hospital Family Practice Center	1276 S. Peachtree Street	Jasper	409-384-5701	75951	8.0
Christus La Clinica de las Hermanas	Highway 107 and La Feria	Santa Rosa	956-636-1805	78593	**1.0**
Christus Rice Medical Center	610 South Austin Road	Eagle Lake	979-234-5571	77434	7.3
Christus San Jose Clinic	301 Hamilton Street	Houston	713-228-9411	77002	**1.0**
Christus Santa Rosa Children's Hospital	333 N. Santa Rosa St.	San Antonio	210-704-2011	78207	**1.0**
Christus St. Elizabeth Hospital	2830 Calder Avenue	Beaumont	409-892-7171	77702	**1.0**
CLAY COUNTY MEM HOSPITAL	310 W. South St.	Henrietta	940/538-5621	76365	7.1
COLEMAN CO MED CTR	310 South Pecos Street	Coleman	325/625-2135	76834	7
COLORADO-FAYETTE MED CTR	400 Youens Drive	Weimar	979/725-9531	78962	10.6
COLUMBUS COMMUNITY HOSP	110 Shult Drive	Columbus	979/732-2371	78934	7

COMANCHE CNTY MEDICAL CTR	10201 Hwy 16 North	Comanche	254/879-4900	76442	7
Community Action Corp. of South Texas	621 E. Sinton	Sinton	361-364-4486	78387	7.3
Community Action Corp. of South Texas	217 W. San Patricio	Mathis	361-460-1796	78368	2.0
Concho County Hospital	614 EAKER STREET	Eden	325-869-5911	76830	**10.0**
Conllingsworth General Hospital	1013 15th Street	Wellington	806-447-2521	79095	10.0
CONNALLY MEMORIAL MED CTR	499 10th St.	Floresville	830/393-1303	78114	2
COON MEMORIAL HOSPITAL	1411 Denver Ave.	Dalhart	806/244-4571	79022	7
CORYELL MEM HEALTHCARE SYS	1507 West Main Street	Gatesville	254/248-6300	76528	4
COVENANT HOSPITAL	1900 College Avenue	Levelland	806/894-4963	79336	4.2
COVENANT HOSPITAL PLAINVIEW	2601 Dimmitt Road	Plainview	806/296-4265	79072	4
COZBY-GERMANY HOSPITAL	707 North Waldrip	Grand Saline	903/962-4242	75140	7
CRANE MEMORIAL HOSPITAL	1310 South Alford Street	Crane	432/558-3555	79731	7.3
CROSBYTON CLINIC HOSPITAL	710 West Main St.	Crosbyton	806/675-2382	79322	10.4
Cross Timbers Community Health Clinics, Inc.	1100 W. Reynosa	DeLeon	254-893-5222	76444	10.5
Cuero Community Hospital	2550 North Esplanade	Cuero	(361) 275-6191	77954	7.0
Culberson Hospital	Eisenhower Rd. Fm. 2185	Van Horn	432-283-2760	79855	10.0
D.M. COGDELL MEM HOSPITAL	1700 Cogdell Blvd.	Snyder	325/574-7437	79549	4
Dallam-Hartley Counties Hospital District	1411 Denver Ave	Dalhart	806-244-4571	79022	7.0
Dell City Clinic		Dell City		79837	10.4
DIMMIT COUNTY MEMORIAL HOSP	704 Hospital Drive	Carrizo Springs	830/876-2424	78834	7
Eastland Community Health Center	404 W. Commerce	Eastland	254-629-8889	76448	7.0
Eastland Memorial Hospital	304 South Daugherty Street	Eastland	(254) 629-2601	76448	7.0
ETMC ATHENS	2000 South Palestine	Athens	903/676-1191	75751	4
ETMC CARTHAGE	409 Cottage Road	Carthage	903/693-3841	75633	7
ETMC CLARKSVILLE	3000 W.Main(Hwy82West)	Clarksville	903/427-6400	75426	7.4
ETMC CROCKETT	1100 Loop 304 East	Crockett	936/546-3890	75835	7
ETMC FAIRFIELD	125 Newman Street	Fairfield	903/389-2121	75840	10.6
ETMC GILMER	712 North Wood St.	Gilmer	903/841-7102	75644	10.6
ETMC JACKSONVILLE	501 South Ragsdale	Jacksonville	903/541-5000	75766	4
ETMC MOUNT VERNON	500 Hwy 37 South	Mount Vernon	903-537-8000	75457	10
ETMC PITTSBURG	414 Quitman Street	Pittsburg	903/856-4500	75686	8
ETMC QUITMAN	117 Winnsboro Street	Quitman	903/763-6300	75783	10
ETMC TRINITY	317 Prospect Drive	Trinity	936/744-1100	75862	6
FAITH COMMUNITY HOSPITAL	717 Magnolia	Jacksboro	940/567-6633	76458	7
Falls Community Hospital and Clinic	322 Coleman St.	Marlin	254-803-3539	76661	7.3

FORT DUNCAN REGIONAL MED CTR	3333 N. Foster Maldonado Blvd.	Eagle Pass	830/773-5321	78852	4
FRIO RGNL HOSPITAL	200 S. IH-35	Pearsall	830/334-3617	78061	7.3
GLEN ROSE MEDICAL CTR	1021 Holden Street	Glen Rose	254/897-2215	76043	10
GOLDEN PLAINS COMM HOSP	200 South McGee	Borger	806/273-1100	79007	4
GONZALES HEALTHCARE SYS	1101 Sara DeWitt Drive	Gonzales	830/672-7581	78629	7
GOOD SHEPHERD MEDICAL CTR	404 N. Kaufman Street	Linden	903/756-5561	75563	10.6
Goodall-Witcher Healthcare Foundation	101 S. Ave T	Clifton	254-675-8322	76634	8.4
GRAHAM REGIONAL MEDICAL CTR	1301 Montgomery Road	Graham	940/549-3400	76450	7
Grimes St. Joseph Health Center	210 South Judson	Navasota		77868	7.3
GUADALUPE REGIONAL MEDICAL CENTER	1215 East Court Street	Seguin	830/379-2411	78155	4.2
HAMILTON GENERAL HOSPITAL	400 North Brown St.	Hamilton	254/386-1600	76531	7
HAMILTON HOSPITAL	901 W. Hamilton	Olney	940/564-5521	76374	7
HANSFORD HOSPITAL	707 South Roland	Spearman	806/659-2535	79081	7
HARDEMAN CTY MEM HOSPITAL	402 Mercer Street	Quanah	940/663-2795	79252	7.4
HASKELL MEMORIAL HOSPITAL	1 North Avenue N	Haskell	940/864-2621	79521	7
Heart of Texas Memorial Hospital	2008 Nine Road	Brady	(325) 597-2901	76825	7.0
Hemphill County Hospital	1020 S. 4th	Canadian	806-323-6422	79014	10.0
HENDERSON MEMORIAL HOSP	300 Wilson Street	Henderson	903/657-7541	75652	5
HEREFORD REG MEDICAL CENTER	801 East 3rd St.	Hereford	806/364-2141	79045	4
Hill Country Memorial Hospital	1020 Highway 16 South	Fredericksburg	(830) 997-4353	78624	7.0
HOPKINS CTY MEM HOSPITAL	115 Airport Road	Sulphur Springs	903/439-4051	75482	4
IRAAN GENERAL HOSPITAL DIST	305 West 5th Street	Iraan	432/639-2575	79744	10
JACKSON HEALTHCARE CENTER	1013 South Wells St.	Edna	361/782-5241	77957	7
JOHNS COMMUNITY HOSPITAL	305 Mallard Lane	Taylor	512/352-7611	76574	2
Kimble Hospital	2101 Main Street	Junction	(325) 446-3321	76849	7.0
Knox County Hospital District	701 South 5th	Knox City	940-657-3535	79529	10.0
LAKE GRANBURY MED CTR	1310 Paluxy	Granbury	817/579-2951	76048	4.2
LAMB HEALTHCARE CENTER	1500 South Sunset	Littlefield	806/385-6411	79339	7.3
Lavaca Medical Center	1400 North Texana	Halletsville	361-798-3671	77964	10.0
LEARN - Austin	304 East 24th St., Services Bldg Rm 319	Austin		78712	***
LEARN - Beaumont	750 N. Pearl Street	Beaumont		77701	***
LEARN - College Station	TAMU Campus, Wehner Bldg, Rm B1	College Station		77843	***
LEARN - Corpus Christi	4901 Westway Drive	Corpus Christi		78408	***
LEARN - Dallas	400 South Akard Street	Dallas		78712	***
LEARN - Denton	307 Avenue B. ISB Rm 133	Denton		76201	***

LEARN - El Paso	501 W. Overland Ave.	El Paso		79901	***
LEARN - Houston	1124 Hardy Street	Houston		77020	***
LEARN - Longview	301 W. Whaley Street	Longview		75601	***
LEARN - Lubbock		Lubbock			***
LEARN - San Antonio	1203 N. Frio Street	San Antonio		78207	***
LEARN - Victoria	US 87, 500 ft South of US 59 Bypass	Victoria		77901	***
LEARN - Waco	3311 Clay Street	Waco		76711	***
LEARN - Waller	41125 Prairie View Bypass	Waller		77484	***
Liberty County EMS	11119 Highway 146	Hardin		77561	7.3
LIMESTONE MEDICAL CENTER	701 McClintic	Groesbeck	254/729-3281	76642	7
LLANO MEMORIAL HLTHCRE SYS	200 West Ollie Street	Llano	325/247-7868	78643	7
Luling Community Health Center	115-T South Laurel Street	Luling	830-875-6399	78648	7.3
MADISON ST. JOSEPH HLTH CTR	100 West Cross	Madisonville	936/348-2631	77864	7
MARTIN COUNTY HOSPITAL DIST	610 N. Saint Peters St.	Stanton	432/756-3345	79782	7.3
MATAGORDA COUNTY HOSP	1115 Avenue G	Bay City	979/245-6383	77414	4
MCCAMEY COUNTY HOSP DIST	2500 Hwy 305 South	McCamey	432/652-8626	79752	10
MEDINA COMMUNITY HOSPITAL	3100 Avenue E	Hondo	830/426-7838	78861	7.3
MEMORIAL HOSPITAL	209 Northwest Eighth Street	Seminole	432/758-5811	79360	10.3
MEMORIAL MEDICAL CENTER	815 N. Virginia Street	Port Lavaca	361/552-6713	77979	4
MEMORIAL MEDICAL CENTER	511 E. Hospital SE	San Augustine	936/275-3446	75972	10
MITCHELL COUNTY HOSP DIST	997 W. I-20	Colorado City	325/728-3431	79512	7
MOORE COUNTY HOSPITAL DISTRICT	224 East 2nd Street	Dumas	806/935-7171	79029	4
MOTHER FRANCES HOSPITAL	2026 South Jackson	Jacksonville	903/541-4500	75766	4
Muenster Memorial Hospital	605 North Maple Avenue	Muenster	940-759-2271	76252	10.2
MULESHOE AREA MEDICAL CTR	708 South 1st Street	Muleshoe	806/272-4524	79347	7
NACOGDOCHES MEM HOSP	1204 Mound Street	Nacogdoches	936/564-4611	75961	4
NOCONA GENERAL HOSPITAL	100 Park Street	Nocona	940/825-3235	76255	7
North Runnels County Hospital District	7821 HWY 153 East	Winters	325-754-4553	79567	7.0
OCHILTREE GENERAL HOSPITAL	3101 Garrett Drive	Perryton	806/435-3606	79070	7
Otto Kaiser Memorial Hospital	3349 South Highway 181	Kenedy	(830) 583-3401	78119	7.0
Palacios Community Medical Center	311 Green Avenue	Palacios	361-972-2511	77465	7.4
PALO PINTO GENERAL HOSPITAL	400 Southwest 25th Avenue	Mineral Wells	940/325-7891	76067	4
PARKVIEW HOSPITAL	900 S. Sweetwater	Wheeler	806/826-5581	79096	10
PARKVIEW REGIONAL HOSPITAL	600 S. Bonham	Mexia	254/562-5332	76667	7
PARMER CTY COMM HOSP	1307 Cleveland Street	Friona	806/250-2754	79035	7
Pecos County Memorial Hospital	387 West IH-10	Fort Stockton	432-336-2004	79735	7.0

PERMIAN REGIONAL MED CTR	720 Hospital Drive	Andrews	432/523-2200	79714	4
PLAINS MEMORIAL HOSPITAL	310 W. Halsell Street	Dimmitt	806/647-2191	79027	7
Powell Memorial St. Joseph Family Medicine Clinic	102 East Main	Centerville		75833	10
PRESBYTERIAN HOSPITAL	2900 Sterling Hart Drive	Commerce	903/886-3161	75428	7.4
PRESBYTERIAN HOSPITAL	719 West Coke Road	Winnsboro	903/342-5227	75494	8
RANKIN COUNTY HOSPITAL DIST	1105 Elizabeth Street	Rankin	432/693-2443	79778	10
REAGAN MEMORIAL HOSPITAL	805 North Main Street	Big Lake	325/884-2561	76932	7
Red River Regional Hospital	504 Lipscomb	Bonham	903-640-7310	75418	7.0
REFUGIO CO MEMORIAL HOSPITAL	107 Swift Street	Refugio	361/526-2321	78377	7
RICE DISTRICT COMMUNITY HOSP	600 South Austin Road	Eagle Lake	979/234-5571	77434	7.3
Richards Memorial Hospital	1700 Brazos Ave.	Rockdale	512-446-2513	76567	7.3
Rolling Hills Health	Hwy 83 & Oak Hill Dr. PO Box 1021	Leakey	830 232 6985	78873	10.0
ROLLING PLAINS MEMORIAL HOSP	200 East Arizona Avenue	Sweetwater	325/235-1701	79556	4
SABINE COUNTY HOSPITAL	2301 Hwy. 83 West	Hemphill	409/787-3300	75948	10
SCHLEICHER COUNTY MED CTR	404 West Murchison	Eldorado	325/853-2507	76936	10.4
SETON EDGAR B. DAVIS	130 Hays Street	Luling	830/875-7000	78648	7.3
SETON HIGHLAND LAKES	3201 S. Water St.	Burnet	512/715-3000	78611	9
SEYMOUR HOSPITAL	200 Stadium Drive	Seymour	940/889-5572	76380	7
SHAMROCK GENERAL HOSPITAL	1000 South Main	Shamrock	806/256-2114	79079	10
SID PETERSON MEMORIAL HOSP	710 Water Street	Kerrville	830/258-7366	78028	4
SMITHVILLE RGNL HOSPITAL	800 E. Hwy 71	Smithville	512/237-3214	78957	2
St. Catherine Hospital	701 S. Fry	Katy	281-599-5700	77450	**1.0**
St. Joseph Franklain Family Medicine Clinic	305 Gay Street	Franklain		77856	10.4
St. Joseph Hearne Family Medicine Clinic	709 Barton Street	Hearne		77859	7.1
St. Joseph Lexington Family Medicine Clinic	8463 Highway 77	Lexington		78947	**2.0**
St. Joseph Normangee Family Medicine Clinic	Main and 9th Street	Normangee		77871	10.4
St. Joseph Regional Health Center	2801 Franciscan Drive	Bryan		77802	**1.0**
ST. MARK'S MEDICAL CENTER	One St. Mark's Place-Hwy 77	LaGrange	979/242/2200	78945	7
STAMFORD MEMORIAL HOSPITAL	P. O. Box 911	Stamford	325/773-2725	79553	7
STARR COUNTY MEMORIAL HOSP	2573 Hospital Court	Rio Grande City	956/487-5561	78582	4.2
STEPHENS MEMORIAL HOSPITAL	200 South Geneva Street	Breckenridge	254/559-2241	76424	7

STONEWALL MEMORIAL HOSPITAL	821 Broadway	Aspermont	940/989-3551	79502	10
SUTTON COUNTY HOSP DIST	308 Hudspeth	Sonora	325/387-2521	76950	7
SWEENY COMMUNITY HOSPITAL	305 N. McKinney St.	Sweeny	979/548-1500	77480	2
SWISHER MEMORIAL HOSPITAL	539 S.E.Second St.	Tulia	806/995-3581	79088	7
TITUS REGIONAL MEDICAL CTR	2001 No. Jefferson St.	Mount Pleasant	903/577-6000	75455	10.2
TRINITY COMMUNITY MED CTR	700 Medical Parkway	Brenham	979/836-6173	77833	4
Tyler County Hospital	1100 West Bluff	Woodville	409-283-8141	75979	8.0
United Medical Centers # 2	202 James Street	Bracketville	830-563-2434	78832	10.5
Vida Y Salud Health Systems	Highway 57 West and Edith Street	La Pryor	830-365-4526	78872	10.2
W.J. MANGOLD MEM HOSPITAL	320 N. Main	Lockney	806/652-3373	79241	10.5
WARD MEMORIAL HOSPITAL	406 South Gary	Monahans	432/943-2511	79756	7
WILBARGER GENERAL HOSPITAL	920 Hillcrest Drive	Vernon	940/552-9351	76384	4
WINKLER COUNTY MEM HOSPITAL	406 South Gary	Kermit	432/586-5864	79745	7
WISE RGNL HEALTH SYSTEM	2000 South FM 51	Decatur	940/627-5921	76234	3
YOAKUM COMMUNITY HOSPITAL	2500 Hwy 305 South	Yoakum	361/293-2321	77995	7
YOAKUM COUNTY HOSPITAL	1600 North Bryan Avenue	Denver City	806/592-2121	79323	7

8. Experience in Developing and Managing Telemedic ine Programs

The This RHC grant application is submitted by a statewide collaboration of nonprofit organizations committed to quality healthcare services for all Texas residents, including those living in rural, geographically remote, and medically underserved areas. Application partners include Christus Health System, the Texas Organization for Rural and Community Hospitals (TORCH), University of Texas Medical Branch (UTMB), Texas A&M Health Science Center (TAMHSC) and the TeleCommunity Resource Center (TCRC).

Several of the collaborators have had both extensive experience and success in developing and managing telemedicine programs, as described below.

University of Texas Medical Branch (UTMB), located in Galveston, has a long-standing history of advancing the use of telecommunications technology for the purpose of improving health care delivery to rural and underserved populations of Texas. Since 1995, clinicians and researchers at UTMB have been testing, refining, and utilizing telemedicine and telehealth technologies to improve and develop telemedicine – solving the problems of access to quality health care. UTMB's telemedicine program has been recognized as one of the top telemedicine programs in the United States and has been inducted into the Smithsonian Permanent Research Collection for Innovation in Information Technology. UTMB's services comprise the largest operational telemedicine operation in the world, with over 300 locations and over 60,000 patient encounters annually. With humble beginnings providing limited services into prison populations, UTMB has grown and developed into the world leader in using technology to provide remote medical services. The mix of UTMB programs spans not only the globe, but all aspects of medical care services. Additional information on UTMB's telemedicine program is provided as Appendix C

Texas A&M Health Science Center's Baylor College of Dentistry was named one of the top four dental institutions nationwide for periodontology, endodontics and geriatric dentistry by American Health Magazine. In 1997, through its Center for TeleHealth, BCD became the nation's first dental school to successfully demonstrate the use of telecommunications technology for dental medicine through a long-distance patient consultation.

9. Project Management Plan

Organizational Structure

THINC is currently being chartered as a nonprofit corporation by the founding members of the collaborative organization. Bylaws specify: members' rights and responsibilities; procedure for electing officers and a board of directors; equitable financial and operating policies; and other principles for successful project management.

Membership in THINC will be open to all nonprofit rural and urban health care providers, including regional health systems, non-profit hospitals, community health centers, federally qualified health centers and rural hospitals. THINC membership will also be open to accredited educational institutions offering medical and clinical training for physicians, nurses and allied health professionals.

Non-voting membership will be available to commercial healthcare providers including hospital systems, private medical practices, long term care facilities, home health providers, and others

Non-voting membership may also be afforded to other appropriate entities, such as specialty organizations providing non-clinical medical management services (insurance processing, etc.) for urban and/or rural providers, independent telecommunication network professionals providing expert network planning, organization, development, management, evaluation and support services and vendors who provide materials, software and services to the network or its individual members. Other interested groups, such as state agencies, regional and statewide rural or urban health care associations are invited to support and participate in the THINC telehealth network.

Organizational Functions

Once incorporated, THINC will serve as the collaborative entity for funding and development on behalf of its members, including cooperative application for health care funding, initially with 2007 FCC Rural Health Care Mechanism Pilot Program. Prior to incorporation of THINC, Christus Health will serve as legal and fiscal agent for the consortium. An interim advisory committee of representatives from each project partner will be established to advise Christus Health's management on matters pertaining to project management, and the appropriate disposition of Rural Health Care Pilot Program funding and other public or private resources generated in support of the THINC initiative.

THINC will be responsible for the design, operation and administration of a nonprofit statewide healthcare network which will provide access to broadband telecom capacity, telehealth service applications, and other healthcare.

THINC will be available to act as coordinator for health networks involving any of its members, and if so designated, as the coordinating organization of interconnection of other medical networks within the state of Texas.

THINC will serve as a forum for health care communications through meetings and by supporting electronic communications among members. THINC will serve as provider and distributor of information and resources for telemedicine technology and content, including distance education materials for health care professionals and individual clients in the network. THINC will develop the network and organizational structure and operations as a model for expansion into a statewide (or larger) rural health care network. THINC may contract for services and/or materials to be delivered to its members by qualified third parties. THINC may act on behalf of its members to aggregate services or equipment purchases to help reduce the cost of such and to help provide a level of standardization.

THINC Organizational Plan

The proposed organization is designed to provide fiscal responsibility, long term stability and sustainability, representation of the needs of all users and to ensure the growth and expanded uses of the network. The planned structure is a 501(c)(3) collaborative corporation created by the users of the network and their various supporters.

Organization Vision: Develop and manage programs to improve health care for rural residents by collaborative, effective use of telecommunications technologies to link rural health care providers to health care centers and higher educational institutions and to national health care resources.

Organization Goal: Create a non-profit organization collaborative to serve at the statewide Texas health care resources vehicle for internetworking and to ensure a sustainable network infrastructure.

The planned organization can accept the fact that new health care technologic applications, equipment, software and services will be introduced over time and that a collaborative entity such as proposed can gather together its members and create other collaborative efforts to fund and develop these technologies. As such, it is expected that this could be another primary organizational function.

Administrative Structure:

1. A new independent nonprofit collaborative formed by members and supporters of the network.

2. A voting member is defined as a founding partner to the original application submission, health care provider, eligible network member, or higher educational organization with a node directly attached to the proposed network. Each member organization will be entitled to one vote within the collaborative. A membership fee may be charged to each member based the type of membership, and for voting members upon their capacity and fiscal resources.

3. Relevant groups which do not provide health care, such as regional and statewide rural or urban health care and professional associations may be invited to support the effort as advising and consulting members, but not as voting members, of the organization.

4. A Board of Directors elected by voting members, with the Chair elected by the board will provide primary governance of the organization. Specific categories may be established for each board member to insure the make-up of the collaborative membership is fully reflected in the board make-up.

Organizational Functions and Capabilities:

1. It will serve as the collaborative entity for funding, development and administration on behalf of its voting members, including collaborative application for health care grants, initially with 2007 FCC Rural Health Mechanism Pilot Program. It may also act as or designate the fiscal agent for any funded grant.

2. It may be responsible for the design, operation management and administration of planned regional networks that can provide broadband telecom capacity to rural health care providers.

3. It might act as coordinator for participating health care networks involving any of its members, and may act as the coordinator of interconnecting health care networks within the state of Texas.

4. It can serve as a forum for health care communications through meetings and by supporting electronic communications among its members.

5. There will be an annual meeting of its members at which time the Annual Report will be provided, Board of Director vacancies will be fulfilled and other voting membership business conducted.

6. It may serve as resource provider and distributor for telemedicine technology and content, including distance education materials for health care professionals and individual clients in the network.

7. It may develop the network and organizational structure and operations as a model for expansion into a statewide (or larger) rural health care network.

8. It may contract for services and/or materials to be delivered to its members by qualified third parties.

9. It may act on behalf of its members to aggregate services or equipment purchases to help reduce the cost of such and to help provide a level of standardization within the health care networks.

Voting Members would include the participants in the networks:

1. **Rural Health Care Providers** (HCP) - clinics and smaller hospitals located outside urban areas which directly deliver rural client services and will benefit from regional health care resources.

2. **Regional and Urban Health Care Providers** (HCP) - centralized health care organizations (normally urban) which provide more advanced health care resources and services for rural health care providers.

3. **Higher Education Institutions** – college and graduate level institutions providing health care and clinical training for health care professionals and allied providers of services and support.

Non-Voting Members could include these kinds of participants:

1. Specialty Organizations – outsource organizations providing non-clinical health care management services (insurance processing, etc.) for urban and/or rural providers.

2. Network Specialists – independent telecommunication network professionals providing expert network planning, organization, development, management, evaluation and support services.

3. Vendors – Individuals or companies who provide materials, software and services to the network or its individual members.

Management Structure

THINC will provide the overall management. The creation of this network will consist of many smaller projects. THINC will determine which projects will be in Year 1, Year 2, or in subsequent years.

THINC will manage the build out of the network to/from established networks to new rural providers. Specific projects will be managed by either THINC members or third parties authorized by THINC.

For those organizations that have existing networks and will be connecting to THINC, they will be the manager of that project working with THINC and LEARN resources. For example, TORCH will manage the project to connect their network to THINC network.

LEARN will provision and support a THINC dedicated, 1 Gbps FrameNet (Ethernet) backbone network with current Points of Presence (PoP) connection available in Houston, Austin, San Antonio, Waco, Dallas, College Station, El Paso and Corpus Christi. Although not currently deployed, LEARN is also committed to provide PoPs in Lubbock and Galveston where direct connections to THINC backbone will be available. We suggest an interim solution of leased, 1 Gbps connections from those cities to the nearest LEARN PoP (Dallas and Galveston respectively) since they are sites with major academic healthcare facilities.

As application or aggregation demands dictate, the backbone can be increased to 10 Gbps or several multiples thereof. Since most of the capital to create the network was provided by the State of Texas, and the basic operating costs for the network are provided by the LEARN member institutions, the incremental cost to increase THINC backbone bandwidth will be highly leveraged. This allows the bulk of the funding now and in the future to be directed to the more costly task of serving rural clinics, hospitals and regional consortia thereof.

Appendices

Appendix A: Collaborative Network Partners

Other than rural residents themselves, the most important participants in the Texas Health Information Network Collaboration (THINC) are the healthcare professionals who deliver vital services to rural Texas communities. The list (above) of those who will benefit from THINC services already numbers in the hundreds and is steadily growing.

Other essential partners in this rural health network are the Resource Center Partners who provide information, assistance and support for improved rural healthcare. These include:

Christus Health System: Christus Health System is a Catholic, faith-based health system comprised of more than 40 hospitals, inpatient and long-term care facilities, as well as dozens of clinics and other health care services. Christus facilities can be found in more than 60 cities in Texas, Arkansas, Louisiana, Oklahoma, Utah, Missouri, Georgia and Mexico.

To support its health care ministry, Christus Health employs 27,000 Associates, and has 9,000 physicians on medical staffs throughout the system. Its dimension, strength, and depth of service place Christus among the top ten Catholic health systems in the United States.

Christus is also listed among the nation's Top 100 Integrated Health Care Networks. Jointly sponsored by the religious congregations of the Sisters of Charity of the Incarnate Word in Houston and San Antonio, the mission of Christus Health is to extend the healing ministry of Jesus Christ.

Texas Organization of Rural & Community Hospitals: Founded in 1990, the mission of the Texas Organization of Rural & Community Hospitals (TORCH) is to be the principal advocate, voice and leadership organization that addresses the special needs, issues and priorities of rural and community hospitals in Texas. Over the last 17 years, TORCH has become a premier, nationally-recognized organization that provides a full range of quality services in the areas of education, communication, advocacy, representation, performance and quality improvement, and professional and leadership development (through its Leadership & Management Institute). Serving a constituency of more than 150 rural and community hospitals and managing a network of more than 130 Rural Health Clinics (RHCs), TORCH represents one of the largest rural hospital and provider networks in the country. The organization's growth over the years is attributed largely to its strong tradition, vigilance and passion to the cause of rural providers and its successes are reflected by the tremendous ongoing support and confidence of its growing membership and state and national partners and affiliations.

Texas A&M Health Science Centers: The Texas A&M Health Science Center, established in 1999, is committed to improving the health of Texans through integrated education, research and public service programs that emphasize accessibility and public and community health. The Texas A&M Health Science Center reaches across Texas

through its six components: Baylor College of Dentistry in Dallas; the College of Medicine in College Station and Temple; the Graduate School of Biomedical Sciences; the Institute of Biosciences and Technology in Houston; and the School of Rural Public Health in College Station and McAllen; and the latest addition, the Irma Lerma Rangel College of Pharmacy in Kingsville.

In particular the **Rural and Community Health Institute (RCHI)** has utilized web-based technology to improve quality of care and patient safety issues in rural healthcare facilities in over 90 Texas counties. Web-based solutions include the ability to conduct virtual physician peer review in a Health Insurance Portability and Accountability Act (HIPAA) compliant manner, an e-occurrence reporting solution, and providing access to a web-based analytic tool allowing hospitals to monitor and evaluate compliance with the Agency for Healthcare Research and Quality (AHRQ) "Patient Safety and Quality" indicator while also utilizing this data to address strategic and marketing trends. The rapid growth of RCHI has been attributed to their ability to utilize e-solutions to meet the needs of rural communities.

University of Texas Medical Branch: The University of Texas Medical Branch (UTMB) is the second oldest medical school in continuous operation west of the Mississippi. Today, it includes 4 schools (Medicine, Graduate School of Biomedical Sciences, Nursing, Allied Health Sciences) and 2 Institutes (Human Infections and Immunity and Medical Humanities). External research funding in 2006 was $157 million. In 2005, UTMB ranked #38 among medical schools in NIH funding ($114.6 million). That year, 8 departments in the School of Medicine (Obstetrics & Gynecology, Pathology, Anesthesiology, Neuroscience & Cell Biology, Biochemistry & Molecular Biology, Surgery, Pediatrics, and Otolaryngology) were in the top 20 of their disciplines funded by NIH. An example of UTMB's commitment to rural healthcare, UTMB established in 1989 a Regional Maternal and Child Health Program which is a system of 26 clinics providing a broad range of health care services for women and children from more than 25 counties in South, Southeast, and deep East Texas .

East Texas AHEC **(Area Health Education Center)** improves the health of communities by developing a quality health workforce and helping address unmet health needs, particularly in rural East Texas. Our 17 years of experience provide us with a unique understanding of rural health issues and barriers. Serving the 111 counties of East Texas, an area that encompasses 91,619 square miles and more than 17 million people, East Texas AHEC conducts its outreach programs through six predominantly rural and three urban community-based centers. East Texas AHEC links communities with health science schools to improve the health workforce of East Texas, enables access to health professions education, provides real-life community education for students, facilitates recruitment and retention support for health providers, provides health education to communities, and enhances community healthcare systems, all with a priority for underserved populations. East Texas AHEC has extensive experience working with rural hospitals, rural health clinics, and other rural healthcare providers. We support our real-time, personal contact programs through websites providing open information access, as well as secure web-based recruitment and data management tools.

TeleCommunity Resource Center: is a 501(c)(3) nonprofit national organization chartered to help develop Internet access and networks for residents of all American communities, especially those living in underserved rural and urban areas. TCRC initiatives advocate and support the use of telecommunications for public information, healthcare and safety.

In 1995 TCRC brought the first free public Internet access to twenty-five Texas towns and cities. TCRC programs have since grown to offer outreach and support resources for local community telecom networks throughout the nation and beyond. One example, the popular community technology educational program, "The Internet Roadshow," has been presented nationwide and in eleven foreign countries. The TCRC Director was chosen in 1999 to assist major Asian countries preparing for trouble-free Y2K Internet conversion, and in 2000 was awarded a U.S. Presidential Medal for public service.

TCRC was an advisor to the $2 billion Texas Telecommunications Infrastructure Fund and architect of community network grant programs which invested approximately $150 million in local healthcare and information networks for more than 200 rural and underserved communities. The TCRC operations group has provided telecom planning, implementation and management services for nearly forty community networks. And for thirteen years it has managed America's largest nonprofit community network operation.

Other TCRC public interest telecommunications work includes service with the U.S. Department of Commerce/NTIA on Technology Opportunities Program grants, with the USDA on Rural Utilities Service programs, with the FCC/USAC on E-rate and Rural Health Care programs, and as telecom advisors to the Rural Policy Research Institute.

In 2005 TCRC was appointed by the Federal Communications Commission to serve on the FCC Consumer Advisory Committee (under the 1972 FACA law). Its representative was selected to head a new FCC Working Group on Rural & Underserved Populations.

Texas A&M Health Science Center's Baylor College of Dentistry was named one of the top four dental institutions nationwide for periodontology, endodontics and geriatric dentistry by American Health Magazine. In 1997, through its Center for TeleHealth, BCD became the nation's first dental school to successfully demonstrate the use of telecommunications technology for dental medicine through a long-distance patient consultation.

LEARN is a member of the National Lambda Rail (NLR) and Internet2 and will be the aggregating connector for Texas for the new Internet2 network being currently deployed. LEARN will provide connection to either or both networks as requested by THINC. They will provide a separate national intranet for the healthcare participants. The LEARN provisioned, THINC infrastructure is a separate, dedicated service capable of open access to national networks (i.e. Internet2, NLR, the Internet etc), tightly controlling access, or maintaining an entirely closed intranet.

Appendix B – Healthcare for Rural Texans

Rural Health

Texas has the largest number of rural residents of any state in the nation. Though the nation's second most populous state, its population density is only 70 people per square mile, spread across 261, 797 square miles - almost 8% of the entire US land mass. (U.S. Census, 2005).

Of the 254 counties in the state, a full 70 % or 177 are rural and are all considered medically underserved. In addition, 70% of Texas counties have been designated primary care health professional shortage areas. Sixty-three counties have no hospitals and 27 counties have no primary care physicians. Of the family and general practice physicians in the state only 15.8% and 19.2% are in rural areas, respectively. Rural communities have even fewer physicians practicing Internal medicine (8%), Pediatrics (5%), Obstetricians/ Gynecologists (5.8%) and Geriatrics (0%) (TORCH Legislative Report 2007).

Currently, many of Texas' rural and urban health centers either have no internet connectivity or very poor connectivity. Often, health care providers lack the resources to obtain needed service, or the service does not exist in their particular location.

In addition, health care providers in Texas are confronted with many challenges in implementing health information networks, such as lack of financial incentives and interoperable standards, compliance with anti-kickback regulations, ensuring that privacy laws and regulations are being followed, and the additional challenges that a competitive market presents. (Roadmap for Mobilization of Electronic Healthcare Information in Texas, September 29, 2006)

Creating a statewide network for health care providers in Texas will improve access to health education for providers and patients and will provide accessibility to many health care services via the internet (i.e. telemedicine). In addition, funding from the Rural Pilot Health Care Program will provide support for the highest level of health care to every Texan, rural or urban, by using existing and new resources, technology, and organizations.

Increasing broadband connectivity among health care providers at the local, state, and national levels will ultimately support the infrastructure for a secure exchange of structured data elements (i.e. electronic medical records) regardless of location. In turn it will positively impact the point of care, continuity of care, patient safety and health care efficiency. An infrastructure that encompasses the entire still also enhances the progress towards an electronic health records system for the residents of Texas. Furthermore the network will provide vital links for disaster preparedness and emergency response.

State of Texas

The State of Texas leadership has made health information technology a priority. The Texas Legislature directed a statewide council in 2005 to establish an advisory committee to develop a plan for the use of information technology (IT) in Texas. The plan is called, The Roadmap for the Mobilization of Electronic Healthcare Information in

Texas. This plan was written for Texas policymakers as a guide outlining recommendations for accelerating the use of electronic medical records (EMRs) and electronic healthcare data sharing in pursuit of better patient health care services and outcomes. In the development of a long-range plan for health information technology the committee recommended essential steps that would begin the implementation of health information exchange.(Roadmap for the Mobilization of Electronic Healthcare Information in Texas, final report, 09-29-06, 7-20-06).

The Governor of Texas, Governor Rick Perry believes the health care system can be transformed to deliver safer, higher-quality care in a more cost-effective way by empowering consumers with information about the precise and quality of health care available to them, developing a secure, electronic health information infrastructure. This led to an Executive order establishing the Texas Health Care System Integrity Partnership (Partnership) to recommend ways to establish a statewide health information exchange for electronic lab results and medication history delivery; support regional health information technology (HIE) as well as registration and health plan enrollment/benefits at point of care (Texas Health Care System Integrity Partnership Report, 3/2007).

The State of Texas' leadership is part of the growing consensus that health care system of the future will be supported by a secure network to improve access to care by delivering health services remotely and to support the exchange of health information among providers and patients, regardless of location. Mobilizing health information electronically can improve the quality and safety of health care by providing ready access to clinical data at the point of care and reducing adverse drug events.

Appendix C

Endorsements and Support for

The Texas Health Information Network (THINC)

Everyone involved in planning and developing this collaborative healthcare project is grateful and proud for the wonderful level of support from so many people across Texas. Using telecommunications as a public service tool for improved rural healthcare seems to generate enthusiasm and energy every time we discuss the idea with community residents and leaders, as demonstrated by the more than two hundred rural community healthcare providers who have joined this community-focused, collaborative FCC grant application and have agreed to participate in the rural telehealth network we are all working to build.

And of course we are pleased by the supportive responses from elected officials ranging from the Governor's office to rural community centers, as well as medical and technology professionals and organizations who believe in telehealth tools for improved rural health.

In addition to the endorsements from public officials and professionals, we have letters of agreement regarding the long list of communities participating in the network project.

Due to the length of this application and the large number of letter, these endorsements are available via the web, with print copies available upon request.

INNOVATION enabled by connecting rural providers to others

High speed access to care and information are critical factors in improving the safety and efficacy of care delivery. While still to be proven, this backbone will enable such activities as:

Active Aging. The aging population is an issue across America, but especially in rural communities due to the outmigration of younger people and lack of economic opportunity. In order to assist the aging population to stay where they want to and be independent as long as possible, intelligent communications systems will need to be in place. These systems will include biosensors for detecting and measuring activity levels as well as collecting vital sign information. These systems will collect data and send it to the care team via the high speed backbone made possible by the project, assuring safe and secure care and monitoring to the active aging. The Texas Office of Rural Community Affairs' (ORCA) Office of Rural Health Division is designated as the Texas State Office of Rural Health by the US Health Resources Service Administration and is sponsoring such innovative research conducted by the University of Houston's Abramson Center for the Future of Healthcare

Emergency Medical Response and Personal Health Journals. The City of Corpus Christi is undertaking an initiative to improve emergency medical response by linking first responders to people's health information. Since individual health information is scattered among multiple providers, the city will provide an electronic health journal that will be used when 9-1-1 is called or in the event of a mass medical event or natural disaster. Many Texas communities are located on or near the Gulf of Mexico and are in the hurricane zone. In the even of an evacuation or other event, an individual's health journal will contain their most relevant health information in order to start the most appropriate treatment as soon as possible. This project furthers the President's Goal of having an electronic health record for every citizen by 2014 (Executive Order #????).

Appendix D - Exceptions Requested

In establishing this unique new rural healthcare initiative, the FCC calls for innovative use of telecommunications technology to improve the health and lives of rural Americans. …<more>…

The collaborating leadership of the Texas Healthcare Information Network project described in this proposal would like to request consideration of … … exceptions…

Request for Exception – School Nurse Network Nodes

Description of Exception:

One of the primary points of entry into the health care system in Texas, especially in rural, economically depressed areas is through the school nurse. They represent an important opportunity to improve health care, health education and to reduce costs associated with initial treatment of children in these communities

Permission is requested to connect up to 20 school districts in rural counties with a RUCA code of 9 or higher with the same broadband connections that are proposed for rural hospitals and clinics.

This request is innovative as it extends the reach of broadband health care support and services to the greatest number of people through facilities which are found in all Texas communities and which play a role in community service and with community disaster relief.

Explanation:

The FCC Rural Health Care Support Mechanism Pilot Program (WC Docket No. 02-60) provides specific organizations and entities that are eligible for funding under the program. It also excludes certain kinds of rural health care providers, In neither case are school nurse offices mentioned, and this request is to make school nurse facilities in Texas public schools eligible for funding under this program.

School nurses fulfill an important role in providing health care to the economically disadvantaged and in rural, medically underserved areas. Their role becomes even more important when preventative care and early diagnosis and treatment are considered. In most schools (but particularly elementary levels) teachers will usually refer any seemingly

ill student to the school nurse if the school has one. At the point the student enters the nurse's office, they are entering the health care system, and at this point supported health care is most important.

There are 8,746 elementary and secondary schools in Texas with over 4,405,000 students enrolled. The attached statement from the Texas School Nurses Organization demonstrates their function and value to the state's health care system. By allowing the inclusion of school nurses as eligible health care providers, the FCC would greatly assist in accomplishing these goals and fulfilling these tasks.

Schools are also primary resources in dealing with disasters. The gyms often provide shelter, the cafeterias, food, and the school nurses help with medical care. Because the health care system and school based disaster relief are so closely tied, especially in rural areas, school nurses become an even more important asset in providing rural health care coupled with disaster relief. As a part of the Pilot Program's desire to assist in Homeland Security matters, there are few more valuable resources than school nurses.

Funding:

The proposed exception adds 25 network node locations to the current application. The average node connection has a total 12-month cost, including installation, backbone and managed network connection of $15,750. The 85 percent support cost would then be $13,390 each or a total of $334,750 for the requested 25 sites.

Exception Alternate:

Under current FCC rules, the schools would be eligible for USAC and E-Rate support for Internet, but not for a statewide health care network. If the FCC cannot fund this pilot directly, an exception could be made to permit traditional school funding to be used for this purpose and include school nurses in its definition of rural health care provider making school nurses eligible for connection.

Conclusion:

The objective is to prove the value of such a connection to the school districts at which point they may pick up the continuing costs and encourage other districts to follow suit. This is a pilot or demonstration project identifying the best way to reach the greatest number of rural residents.

The following is a statement from the Texas School Nurse Organization, their professional organization:

The Texas School Nurse Role

We all know that a healthy student is an educationally successful student. School nurses are committed to improving the health of school age children in Texas, and they play a vital role in reducing absenteeism and keeping students in school, so that they can learn.

* School Nursing interventions are linked to positive changes in school performance and decreased absenteeism. Students are able to return to class sooner, because the nurse is able to make an accurate assessment of when intervention is appropriate, so they are not sent home unnecessarily. School nurses also study clinic visit trends, so they can identify problems that may not be readily apparent. □

* Students in states with a higher ratio of school nurses to students have lower death rates, are less likely to become teenage parents, and are more likely to graduate from high school on time.

* School nurses teach health, (such as hand washing for communicable disease prevention, dental hygiene, puberty, nutrition) in the classroom setting, in addition to directly teaching students one to one on a daily basis, including their families. The nurse is a health resource to faculty, also.□

* Teachers have expressed concerns that instruction time will be reduced if nurses are not there to deal with daily health issues. School Nurses assist in meeting the basic needs referred to in Maslow's Hierarchy of needs, (physiological safety and a sense of belonging) which have to be met before significant learning can occur.□

* Through vision and hearing screening, school nurses identify possible learning disabilities early.□

* The Individuals with Disabilities Education Improvement Act gives students with more complex health issues an opportunity to attend school. However, they may require more nursing management skills, which require more than just knowing how to do a technique. School Nurses can troubleshoot equipment

malfunctions and assess the effectiveness of interventions.

* In the recent hurricane disaster, school nurses played a pivotal role in providing continuity of education for displaced students through immunization tracking and helping find health services needed by the students and their families. Nurses offered a listening ear for the trauma that some of the families experienced.

* School nurses are a liaison between parents and physicians in securing health care for children. With the ever-widening gap of uninsured and under-insured children, the school nurse becomes a vital link to healthcare for many children. Additional mandated screenings, such as Spinal and a skin marker that correlates with insulin resistance, can reduce the cost of later interventions when the conditions have become worse and maintain a higher quality of life of the individual.

* Parents are unaware that the 65% rule does not include nurses. They believe that their child is going to be safely cared for by a school nurse.

* Unlicensed assistive personnel (secretaries, aides, etc.) are not equipped to make clinical nursing judgments, and feel uneasy with the added responsibility. Despite the fact that they may be “immune from liability” if something goes wrong, they do not want any harm to come to a child, because they did not provide the correct intervention. School personnel can be trained on a basic level of training for emergent conditions until a qualified nurse can arrive. The knowledge and expertise that can be provided by one nurse is more cost effective than training and retraining a myriad of assistive personnel to handle individual nursing functions and is significantly safer for the children.

* School Nurses have been identified as a critical link in reporting significant health trends in the planning of an effective, efficient, pandemic flu response.

The image of School Nurses, unfortunately, is passing out band-aids and taking temperatures. That is just a caricature. When school nurses are part of the educational team, they help insure that all school children have the same opportunity to reach their maximum learning potential, regardless of their physical, mental or economic status.

*Comparing the Number of Ill or Injured Students Who Are Released Early From School by School Nursing and Nonnursing Personnel. Linda L. Wyman RN, MSN, The Journal of School Nursing Vol. 21 No 6 pages 350–355.

Request for Exception: Dell City Project

Description of Exception:

The very nature of networking and routing protocols allows “Networks to network Networks”.
Permission is requested to connect selected local health clinics to the appropriate nearby county, town, or consolidated Independent School District (ISD) networks in order to maximize sustainability. These ISDs will often be in the E-Rate program.

Explanation:

In many small towns and unincorporated areas, the local clinic often serves as the school clinic as well as the town or county facility. The families served by the clinic and the school district are the same. A natural affinity exists. Independent School Districts in Texas have benefited significantly from the Texas Telecommunications Fund which provided much needed hardware, software, and connectivity in recent years. This funding source has ended but its benefits continue to be felt. Moreover, many of these same school districts currently benefit from E-Rate discounts.

As in other programs of this type, sustainability is the key element for long-term success. The concept of community networks, where local public oriented network users share the link to the outside and its costs, is paramount in sustaining the network.

Two levels of network connectivity are achievable with this type of link: the regular internet and THINC. Most of the smaller ISDs in Texas connect to the Texas Education Agency Regional Service Center for their area of Texas or to the Texas Higher Education Network (THENet) or the Trans Texas Video Network (TTVN). The regional service centers, THENet and TTVN are directly connected to LEARN as well as to the regular internet. These higher level networks are able to use sophisticated routing techniques to route and isolate the appropriate traffic and direct it to THINC, I2, NLR, CDC, etc. Obviously, each opportunity of this type has to be considered on its own merits and THINC would be responsible for planning and network coordination to insure that the appropriate network traffic was protected and routed properly.

An example of this type of connection would be for Dell City, Texas.

Dell City is in deep West Texas about 85 miles east of El Paso. As of the census of 2000, there were 413 people residing in the city. The racial makeup of the city was 61.50% White, 1.45%African American, 1.94% Native American, 0.24% Asian, 32.69% from other races, and 2.18% from two or more races. Hispanic or Latino of any race was 69.25% of the population. The median income for a household in the city was $19,602. About 29.4% of the population was below the poverty line.

There is one school building serving 113 students in all 12 grades. The school has a T1 going back to the Regional Service Center in El Paso. The local city volunteer nurse has just been certified to give school physicals so that the students do not have to drive to El Paso in order to participate in sports.

It is 68 miles to the nearest hospital and until last year, when Dell City bought an ambulance, the nearest ambulance was 68 miles. Recently, work has been done to reestablish the city clinic facility which has been closed for years. The University of Texas Health Science Center at Houston (UTHSCH) is prepared to provide a transportable, integrated system of medical communications and medical computing suitable for remote support by a physician. This system was developed by UTHSCH and Texas A&M University under grant from the Department of Defense. The project, **D**isaster **R**elief **E**mergency **M**anagement **S**ystem (DREAMS), was intended to develop low cost, primarily COTS (commercial off the shelf) support systems for ambulances so that medical treatment could be supported, enhanced, and expanded while in route to the hospital. A version of this system was developed for small rural clinics and hospitals and it is this version which is targeted for Dell City.

By connecting the newly opening clinic to the Dell City ISD T1 instead of taking a T1 back to El Paso, school nurse support is enhanced, the city clinic obtains the appropriate connectivity, and the net sustaining cost for the city is kept to a minimum.

Funding:

Because this clinic is intended to serve most of the residents of Hudspeth County, Texas, long term funding is intended to be part of the Hudspeth County Commissioners' budget and the Dell City budget. Obviously, opportunities such as this and grant programs will be utilized as and when possible to supplement resources.

It is estimated that the local link will cost approximately $300 per month. Hardware requirements are the same as if this T1 was taken back to El Paso as a regular in LATA service for which it is eligible.

Exception Alternate:

The Dell City clinic is eligible under FCC rules for the normal Universal Services Fund Telehealth program as well as to be a regular participant of the THINC project. If this exception is not granted, THINC will support the Dell City clinic as a regular participant.

Conclusion:

Although this exception request has used the Dell City clinic as a class example and it is a real example to be implemented, it is the overall intent to seek FCC permission to apply this concept with judicious thought throughout THINC when it is felt that this option best supports long term sustainability without sacrifice of security and service.

Request for Exception: Liberty County Emergency Medical Services

Description of Exception:

Truly "Mobile Networking" is not just "transportable networking" but works seamlessly while on the move. This is a very powerful concept for trauma and acute care medicine in rural America. "Distance" equates to "Time" equates to the "Golden Hour".

Permission is requested to connect four (4) technology enhanced, rural serving ambulances to the THINC backbone via mobile 3G cell technology.

This is truly an innovative use of technology and telecommunications serving rural America.

Explanation:

In many small towns and unincorporated areas, the local ambulance service may be serving the entire county or often the most rural portions. It is not unusual to have an ambulance service located in a RUCA code of 4 or less which serves primarily areas of 7 and above.

A typical East Texas example would be Liberty County Emergency Medical Services (LCEMS). This ambulance serves portions of Liberty County (population – 70,154) and most of rural west Hardin County. It is a 501c3 with a service contract from the Liberty County Commissioners. However, the cities of Liberty (which accounts for 11.5% of Liberty County's population) and Cleveland (10.8%) are not in the LCEMS service area. Approximately 30% of the county population lives in towns of 5,000 or more. The remaining 70 % are scattered throughout 1,100 square miles of deep East Texas Piney woods - the densest forested area in Texas.

For the past four years, LCEMS has participated in the DREAMS project. DREAMS is a Department of Defense research program jointly run by Texas A&M University and The University of Texas Health Science Center at Houston. The objective of DREAMS is to utilize commercial off the shelf (COTS) telecommunications and medical equipment to assist the Emergency Medical Technician in an ambulance in the field. The research data produced by DREAMS is the second largest contribution to the National Trauma Vitals Database maintained at Ft. Sam Houston. This data is used to help determine pre-hospital care outcomes and how civilian methods may be used to care for our soldiers in the field.

By connecting the on-board EMT staff with a remote hospital emergency room physician, assistance can be provided which ensures that the patient is given timely and effective medical interventions during the pre-hospital transport. The "Golden Hour" refers to that time period in which a patient can be stabilized to such an extent that they can be transported to the next level of care facility. Sometimes the "Golden Hour" is only minutes and medical decisions have to be made rapidly and accurately. In rural America,

Golden Hour time is lost to long travel times for trauma and acute care patients. In Texas, a victim of a motor vehicle accident outside of the nine major urban areas is four times as likely to die in route than if the victim was injured in one of these urban centers.

Utilizing sophisticated software and hardware, DREAMS provides full motion video, remote control of cameras and medical equipment, transmission of medical data (not "images" of medical data), and real-time medical record keeping. It is not unusual to have the attending physician extend the normal protocols in use when sufficient information is available. The record of the patient's transport medical information is at the emergency room before the patient is. The primary communications path in use is 3G cell modems – two per ambulance. The system can utilize up to eight modems, but it has been determined that there is sufficient coverage in Liberty County by using only two providers. By utilizing cell modems from different service providers, the ambulance is always in contact by at least one set of towers.

The existing Department of Defense grant is in its final phase. Although the equipment will be available for continued use by Liberty County, there are not grant funds to support the connectivity. With connectivity assured, Liberty County would continue to serve its constituents and also contribute to the ongoing and very critical basic research into pre-hospital trauma care.

Funding:

This proposed exception requires approximately $640 per month throughout the period of performance. This consists of eight (8) 3G cellular modems at a monthly service rate of approximately $80 each per month.

Should it be authorized to participate in the FCC program, Liberty County EMS will provide sustaining funding out of its operation budget for all required matching funds if not obtained elsewhere. This sustaining match will continue as long as the FCC allows its participation.

Exception Alternate:

Under the current rules, there is no alternate FCC program for this exception. The project would resort to traditional grant opportunities for continuing support.

Conclusion:

It is felt that this exception request is an innovative glimpse into the future for the FCC Universal Services Fund. The model and concepts are scalable and transportable to anywhere in the nation. Even though this example discusses the use of 3G cell modems, the non-recurring engineering (NRE) has already been done in the DREAMS project for using satellite, the 802.11 family of wireless, and other telecommunication media.